THE SAN FELIPE STORY

By Harry Farrell

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PROPERTY OF SANTA CLARA VALLEY
WATER DISTRICT
5750 Almaden Expressway
San Jose, California 95118

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by way of the
Pacheco Tunnel route,
to lands and municipalities
in Santa Clara,
San Benito, Santa Cruz,
and Monterey Counties.’”

Ninetieth Congress of the United States of America

AT THE FIRST SESSION

Begun and held at the City of Washington on Tuesday, the tenth day of January,
one thousand nine hundred and sixty-seven

An Act

To authorize the Secretary of the Interior to construct, operate, and maintain the San Felipe division, Central Valley project, California, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purposes of providing irrigation and municipal and industrial water supplies, conserving and developing fish and wildlife resources, enhancing outdoor recreation opportunities and other related purposes, the Secretary of the Interior acting pursuant to the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto), is authorized to construct, operate, and maintain, as an addition to, and an integral part of, the Central Valley project, California, the San Felipe division. The principal works of the division shall consist of the Pacheco tunnel, pumping plants, power transmission facilities, canals, pipelines, regulating reservoirs, and distribution facilities. No facilities shall be constructed for electric transmission and distribution service which the Secretary determines, on the basis of an offer of a firm fifty-year contract from a local public or private agency, can through such a contract be obtained at less cost to the Federal Government than by construction and operation of Government facilities.

SEC. 2. The conservation and development of the fish and wildlife resources and the enhancement of recreation opportunities in connection with the San Felipe division shall be in accordance with the provisions of the Federal Water Project Recreation Act (79 Stat. 213).

SEC. 3. The Secretary may contract with the State of California for the delivery through facilities of the State water project to the San Luis forebay reservoir of all or any part of the water of the Central Valley project assigned to the San Felipe division.

SEC. 4. In locating and designing the works and facilities authorized for construction by this Act, and in acquiring or withdrawing any lands as authorized by this Act, the Secretary shall give due consideration to reports prepared by the State of California on the California water plan, and shall consult with local interests who may be affected by the construction and operation of said works and facilities or by the acquisition or withdrawal of lands, through public hearings or in such manner as in his discretion may be found best suited to a maximum expression of the views of such local interests.

SEC. 5. In view of the special circumstances of the San Felipe division, neither the provisions of the third sentence of section 46 of the Act of May 25, 1926 (44 Stat. 636, 649) nor any other similar provision of the Federal reclamation laws shall be applicable in the south and north Santa Clara subareas so long as the water utilized on project lands is acquired by pumping from the underground reservoir.

SEC. 6. For a period of ten years from the date of enactment of this Act, no water from the project authorized by this Act shall be delivered to any water user for the production on newly irrigated lands of any basic agricultural commodity, as defined in the Agricultural Act of 1949, or any amendment thereof, if the total supply of such commodity for the marketing year in which the bulk of the crop would normally be marketed is in excess of the normal supply as defined in section 301(b)(10) of the Agricultural Adjustment Act of 1938, as amended, unless the Secretary of Agriculture calls for an increase in production of such commodity in the interest of national security.

SEC. 7. There are hereby authorized to be appropriated for construction of the new works involved in the San Felipe division

$92,380,000 (October 1966 prices), plus or minus such amounts, if any, as may be required by reason of changes in the cost of construction work of the types involved therein as shown by engineering cost indexes and, in addition thereto, such sums as may be required to operate and maintain said division.

John W McCormack

Speaker of the House of Representatives.

Hubert H Humphrey

Vice President of the United States and
President of the Senate.

Lyndon B Johnson

August 27, 1967

Contents

THE SAN FELIPE WATER PROJECT MAP 8

"THE WHOLE FOUNDATION OF CALIFORNIA'S PROSPERITY" 13

THE COASTAL VALLEYS: FROM ABUNDANCE TO CRISIS 17

AS THE WELLS ARE DEEPENED, 3,500 ACRES SUDDENLY DIE 21

HERB JONES SETS HIS SIGHTS ON CENTRAL VALLEY WATER 22

"WE HAVE TO GIVE SOME CREDIT TO THE ALMIGHTY" 24

THE WINDS OF WAR BUFFET SAN FELIPE 26

THE STATE OF CALIFORNIA BECOMES A COMPETITOR 27

A STRUGGLE FOR CLOUT ON THE SAN JOSE TURF 29

BUILDING A FIRE UNDER UNCLE SAM 31

A SMUDGE OF BLACK SMOKE IN THE FEATHER RIVER CANYON 32

THE TIME TO "PUT UP OR SHUT UP" DRAWS NEAR 33

"IT IS A PLEASURE FOR ME TO... HELP BLOW UP THIS VALLEY" 37

SAN FELIPE IS "ENGINEERINGLY FEASIBLE AND ECONOMICALLY JUSTIFIED" 39

THE SAN FELIPE HEARINGS: FRIENDLY—WITH SOME POLITICS 40

NEW CHALLENGES: THE ENERGY CRUNCH, INFLATION, THE ENVIRONMENTAL TIDE 44

THE GREAT TRANSITION: FROM PLANNING TO BUILDING 55

SAN FELIPE SURVIVES THE JIMMY CARTER "HIT LIST" 56

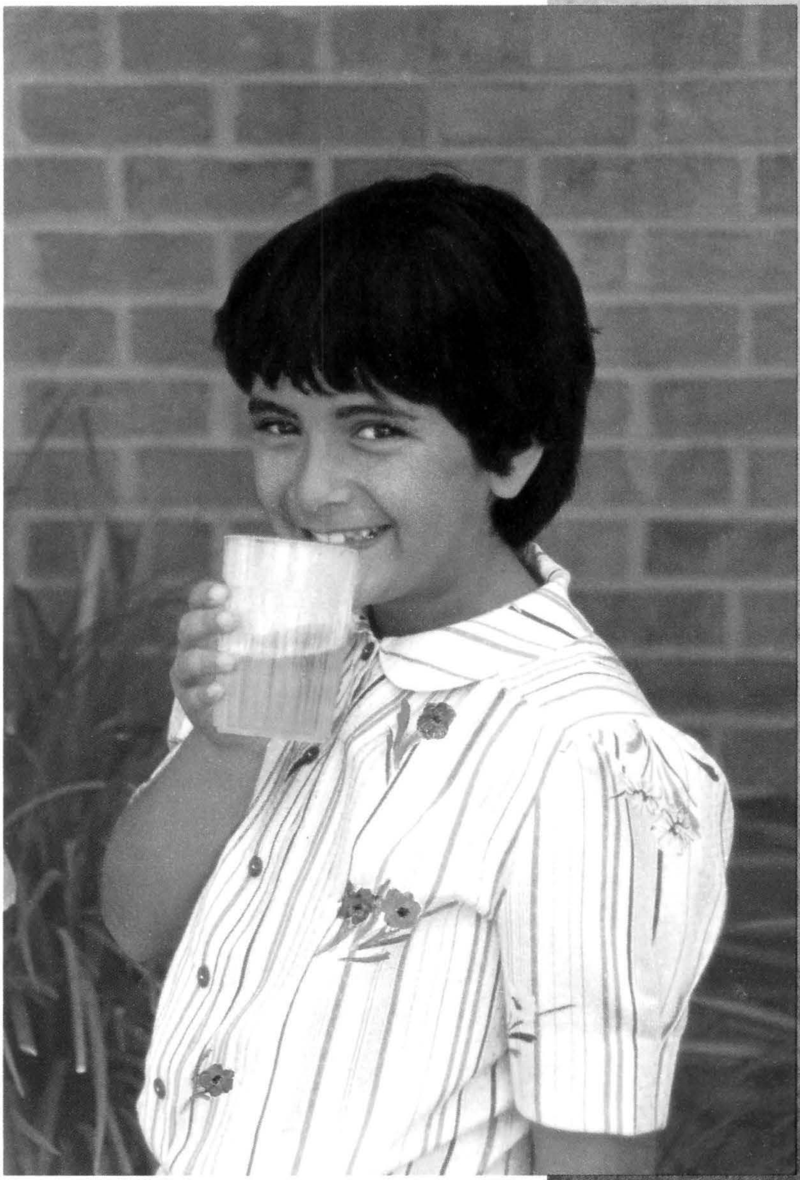
THE SCVWD SIGNS ITS CONTRACT — "THE ICING ON THE CAKE" 58

A SCARE AT THE BID OPENING: DONALD DUCK TAKES OVER 59

APRIL 18, 1979: DIGGING STARTS ON THE PACHECO TUNNEL 61

THE NEXT-TO-LAST CHAPTER: SIX YEARS OF LIVELY ANTICLIMAX 64

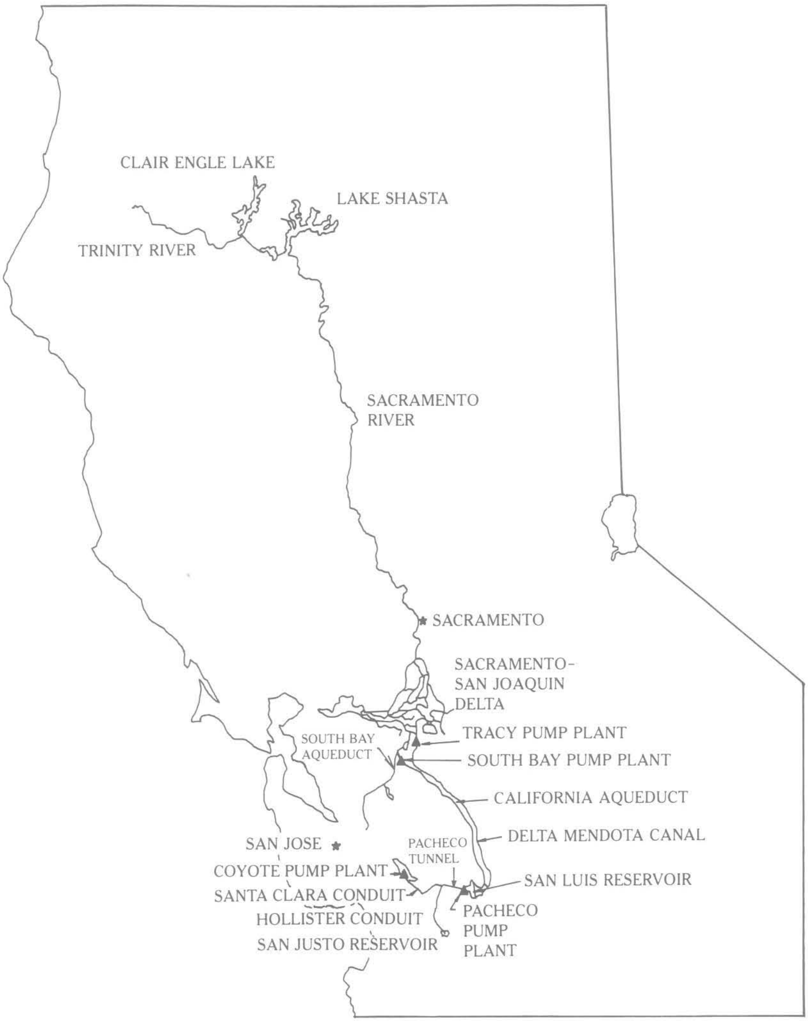
SAN FELIPE: A PROJECT BUILT FOR YEAR 2020 A.D. 65



Forty years of dreaming, hoping, planning, lobbying, more planning, and finally design and construction by scores of people have been for this child and all the water users of the San Felipe service area.

THE SAN FELIPE WATER PROJECT MAP

While the legal "source" of San Felipe water is the Trinity River some 300 miles north of Santa Clara County, water that will reach the San Felipe service area comes from all the rivers in northern and eastern California that mingle in the Sacramento–San Joaquin Delta. Once pumped from the Delta, the water travels south to San Luis Reservoir. It is taken from San Luis by the Pacheco Pumping Plant and then sent through the Pacheco Tunnel to buried pipelines that serve San Benito and Santa Clara counties.



The year was 1960. The place was the floor of the House of Representatives, and Charles Gubser, Republican congressman from Gilroy, had a problem.

The House was debating the San Luis authorization act, to create a vast inland sea astride the old Pacheco Pass Highway, twelve miles west of Los Banos in Merced County.

Gubser's district was sprawling in those days, taking in all of Santa Clara, San Benito, and Santa Cruz Counties. It was a "thirsty" district, severely overdrawing its water resources to meet the needs of its agriculture and explosively growing population. For at least a dozen years, its farmers and foresighted leaders had known that sooner or later an enormous quantity of imported water would be needed. A Pacheco Pass tunnel through the Diablo Mountains, from the planned San Luis Reservoir, seemed a promising way to bring it in.

Gubser's problem now was part timing, part engineering, part politics. Here was the Congress ready to authorize San Luis Dam, but the authorization bill defined its service area as five hundred thousand acres on the west side of the San Joaquin Valley, excluding Gubser's counties.

In 1948, the Secretary of the Interior had been directed by Congress to study the feasibility of serving the coastal valleys also, but he had dragged his feet, and his findings were still four years in the future. Now, with San Luis going ahead, Gubser could see his district getting lost in the shuffle.

The San Luis bill had been approved by the House Committee on Interior and Insular Affairs. The committee's Chairman Wayne N. Aspinall, a no-nonsense lawyer and schoolteacher from Colorado and the foremost water expert in Congress, was handling the bill on the floor.

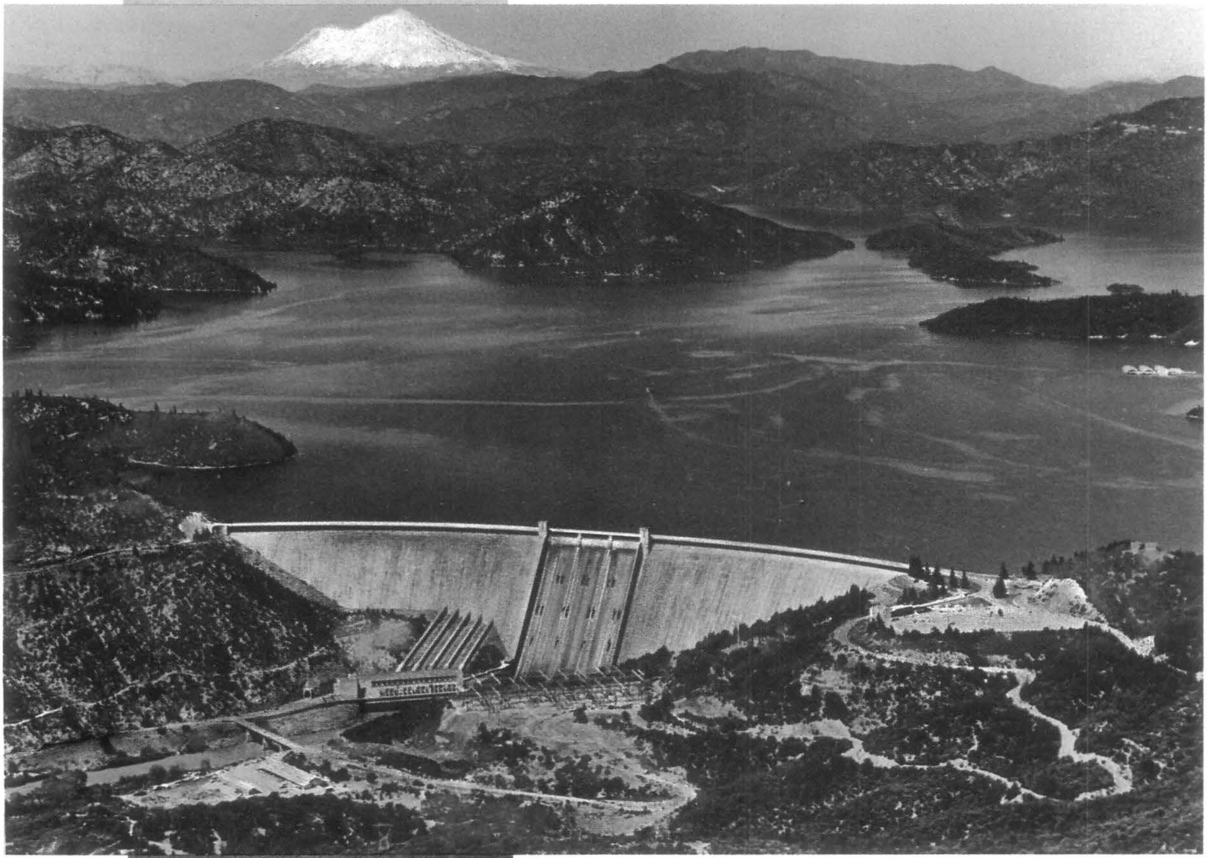
"Aspinall wouldn't let me have the Pacheco Tunnel authorized in the San Luis Bill," Gubser recalled a quarter-century later, "because the engineering work wasn't far enough along."

Gubser therefore broached the idea of an amendment to the bill, giving conditional recognition to the tunnel on the assumption it would be built eventually.

"Write it out," Aspinall said.

Gubser went to his desk and pondered the wording. He was not an attorney; so his prose was unlawyerlike. But he had been a teacher at Gilroy High and knew how to string words together.

"I thought about what I wanted to say, and the word 'contemplate' came to mind," he remembered later. "I couldn't think of a better one."



"Shasta Dam was the keystone element of the Central Valley Project, the first great undertaking to catch the runoff of California's raging northern streams and divert it south."

“‘It is a pleasure for me to come out here and help blow up this valley.’ A few minutes later Kennedy and Brown pushed polished brass plungers to detonate the explosives of the groundbreaking. It was evident that neither the president nor the governor had more than a vague idea beforehand of the spectacle they would set off.”

He started to scribble on the back of an envelope; for his constituents it may have been the most important prose written on such stationery since Lincoln's Gettysburg Address. Gubser knew it had to be soundly structured, to pass muster with Aspinall. As a Democrat, the Coloradan was on the opposite side of the aisle from Gubser, who nonetheless expected fair treatment.

"I couldn't name a more honorable man than Aspinall," he later recalled. "When that son of a gun gave you his word, you could put it in the bank."

After a few minutes Gubser returned to Aspinall, at the majority table, and handed him the envelope.

"How's this, Wayne?" he asked.

Aspinall scanned the Gilroyan's proposed amendment and said, "I'll take it."

So it came to pass that the San Luis authorization bill, as enacted, directed the Secretary of the Interior to design the dam and reservoir "in such a manner as to contemplate and make possible the future provision of Central Valley Project service, by way of the Pacheco Tunnel route, to lands and municipalities in Santa Clara, San Benito, Santa Cruz, and Monterey Counties."

At that point, it was anybody's guess whether the tunnel, which would become the centerpiece of the San Felipe Water Project, would ever be built. The engineers who later planned San Luis Reservoir determined that if the Pacheco Tunnel were ever built, its inlet would be more than 200 feet below the maximum water surface. So, invoking the legislative amendment, they drew into their plans the inlet structure and the first 1.8 miles of the tunnel, to be constructed before the reservoir was filled.

It was a bold gamble. "Gubser's pipe," as it came to be called, cost $8.4 million — a 13-foot conduit leading to a dead-end inside a mountain where some day, if luck held, another 8.5 miles of tunnel might hook onto it.

Later Gubser's amendment was hailed as the far-seeing piece of statesmanship that made San Felipe possible. After Gubser's retirement, however, he confessed that the acclaim he achieved for his "contemplation" amendment was dubiously deserved.

"When I wrote that," he said, "the necessity for the underwater pipeline never entered my head. I'd like to be able to say it did, but I didn't realize the inlet would be covered with water... I was just trying to salvage something politically. I just wanted some words in there to keep the thing alive."

“THE WHOLE FOUNDATION OF CALIFORNIA’S PROSPERITY...”

As the San Felipe Project delivers its first gallon of water, it is already a hardy survivor. It has existed 39 years as a dream, 23 years as defined concept, 20 years as an authorized project, and 12 years under construction. It has moved forward in the face of obstacles through the administrations of eight presidents—four Democrats and four Republicans. It has survived the stringencies of two wars, a quarter-century of rampant inflation, political and bureaucratic turf battles from San Jose to Washington, north-south regional jealousies, a determined assault from slow- and no-growth environmentalists, and a mid-course revision of its basic engineering.

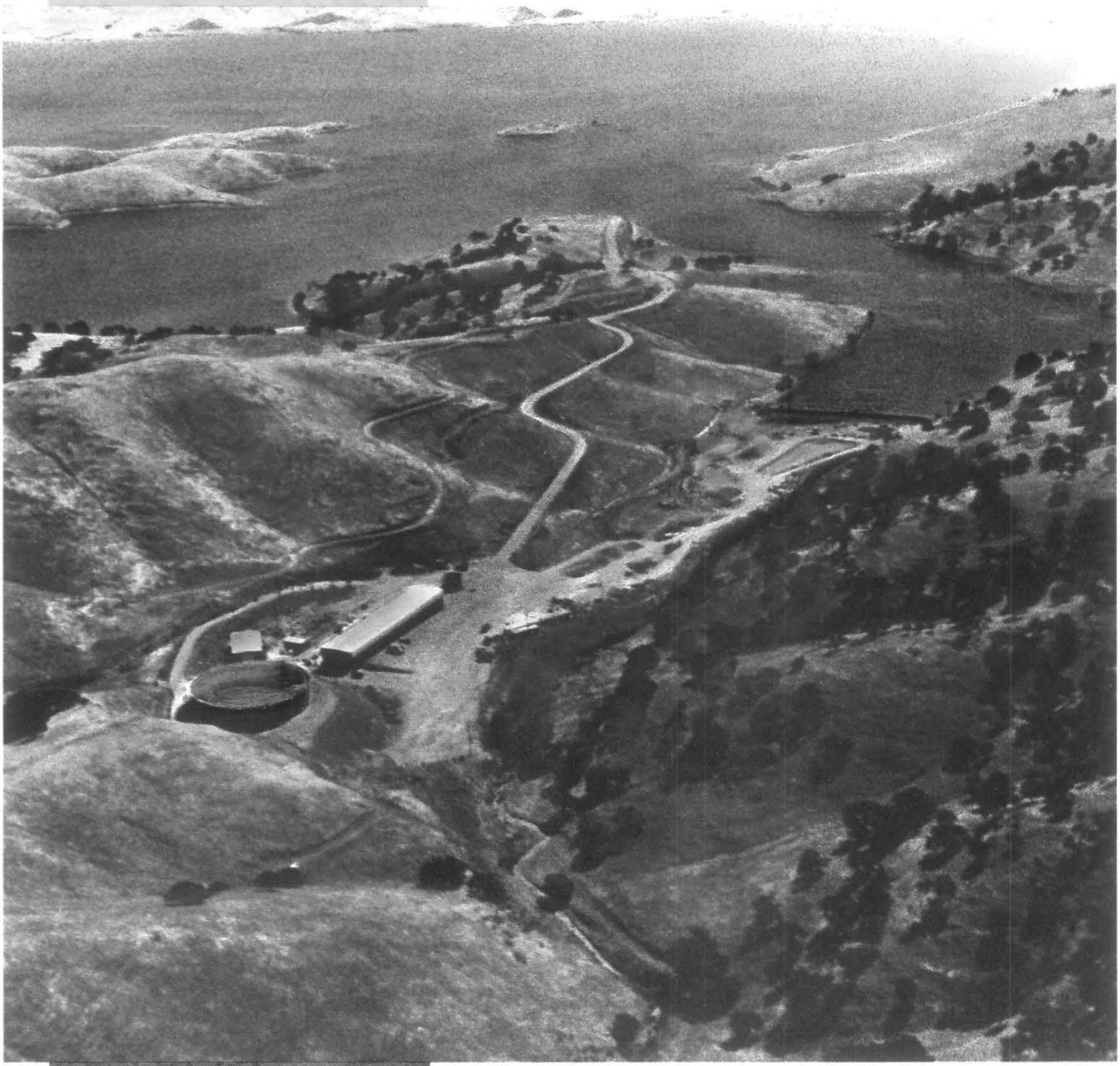
The San Felipe story is not a self-contained segment of history; it is a chapter in the larger story of California’s continuing effort to harness its unruly waters for its people’s use.

“The whole foundation of California’s prosperity is the control of its water,” says Alden Campen of San Jose, a veteran of the San Felipe struggle.

For reasons deeply rooted in history and geography, Californians since statehood have defied Nature, settling not in areas of water-abundance but in arid regions. The cliche, “The water is in the north, the people in the south,” is an oversimplification but contains much truth.

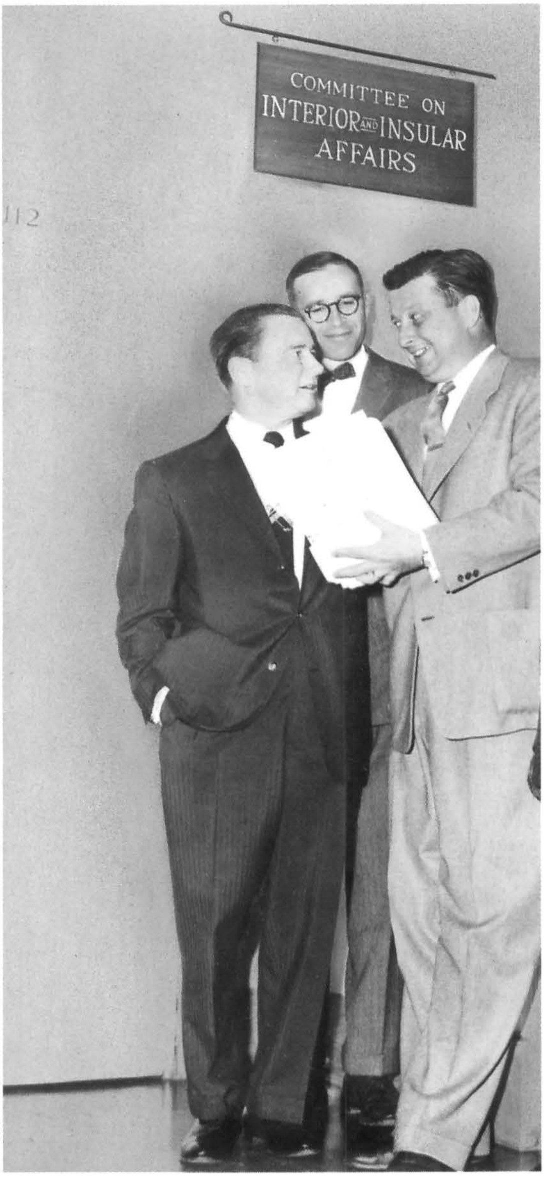
North of the Tehachapis, the overpowering rivers are the Sacramento and San Joaquin and their tributaries. Through their watersheds, draining the great Central Valley and its flanking mountains, flows 60 to 65 per cent of the state’s water. The two rivers converge from north and south respectively in their common Delta before emptying into San Francisco Bay. Until the completion of Shasta Dam on the upper Sacramento in 1945, this river system was essentially untamed, its winter and spring torrents wasting millions of acre-feet of water through the Golden Gate each year.

Shasta Dam was the keystone element of the Central Valley Project, the first great undertaking to catch the runoff of California’s raging northern streams and divert it south. Originally authorized in 1933 as a state project, the CVP was taken over by the federal government during the Great Depression because the state was unable to finance it. It was built as a New Deal public works project by the Bureau of Reclamation, under Franklin D. Roosevelt’s irascible Secretary of the Interior Harold L. Ickes.



Pacheco Pumping Plant and site of the East Portal of Pacheco Tunnel.

"The filling of San Luis Reservoir began on April 12, 1967, four months before the dam was finished, and continued for more than two years, until May 31, 1969. The resultant sea, 304 feet deep with 12,700 surface acres, is seven and a half miles across, north to south. On misty days it is like an ocean, with seagulls, five-foot waves, and its horizon lost in infinity."



"Several years before Congress authorized construction of the San Felipe Project, members of the California delegation were preparing plans for the legislation. Here, Congressman Charlie Gubser, right, talks to Clair Engle, left, who was then chairman of the House Committee on Interior and Insular Affairs; Santa Clara Valley Water Conservation District counsel Albert Henley looks on."

The CVP depends upon the natural channel of the Sacramento River to carry Shasta's four million acre-feet of impounded water as far south as the Sacramento-San Joaquin Delta. There, at the Tracy pumping plant, six huge pumps lift the flow 197 feet into the Delta-Mendota Canal, a concrete-lined artificial river 100 feet wide and 117 miles long, to continue its journey southward.

The original purpose of the Delta-Mendota Canal was to deliver CVP water to farmlands in the lower San Joaquin Valley. But farther south, along the western edge of the Valley, was a dreary area of some half-million acres, outside the CVP service area, which stood to derive no benefit from the canal at all.

This tumbleweed desert, in Merced, Fresno, and Kings Counties, has been called "the richest land this side of the Nile," but its annual rainfall is only about six inches, and in the 1930s little of the area was irrigated.

"All it was good for was sheep pasture," says Alden Campen, whose family owned 160 acres of it. "In a good year we got about 15 cents an acre from the pasturage. In a bad year we got nothing, because the grass didn't grow."

As late as 1942 the population of this vast area was only about four thousand, or one person per 125 acres.

Then suddenly, World War II brought unprecedented demands for food and fiber, and this arid land was planted to cotton, flax, barley, wheat, and vegetables. Wells were dug—some as deep as 2,000 feet, with 400-foot lifts, tapping the lower aquifers—water-bearing sand or gravel strata—for irrigation. The crops were profitable under wartime conditions.

Soon, however, the wells began receding. With the return of a peacetime economy came the threat that these half-million acres would revert to fallow desolation. A new water source had to be found, and the area's growers banded together to find one.

In the watershed of San Luis Creek in Merced County, just west of the Delta-Mendota Canal routing, Bureau of Reclamation engineers had long since surveyed a horseshoe configuration of foothills which, closed by a dam, could become an enormous reservoir. It could hold up to two million acre-feet. The San Joaquin's west side growers knew the Delta-Mendota Canal was designed with excess capacity in winter months, and if this could be used to fill such a reservoir, their imperiled lands could be perpetually fertile.

Thus the San Luis concept, upon which the San Felipe dream would follow, was born.

THE COASTAL VALLEYS: FROM ABUNDANCE TO CRISIS

In the coastal valleys to the west of the Diablos, throughout the first half of the Twentieth Century, water conservationists were playing out their own separate but similar scenario.

In terms of money spent, acre-feet delivered, acreage, and population served, the effort in Santa Clara and San Benito Counties was but a sideshow to that in the Central Valley. Nonetheless, to the farmers and others affected, what was happening was of equal if not surpassing importance.

During the first century of California's statehood, the Santa Clara Valley went from water abundance to water crisis. The first well drilled in San Jose, in 1854, struck water under such pressure that it spouted ten feet into the air. By 1865 there were about 500 artesian wells throughout the Valley, with their water wasting into the Bay and eroding the lowlands. Fountain Alley in downtown San Jose takes its name from one of them, a gusher at First and Santa Clara Streets.

Over the next 55 years, as the Valley's population grew and thousands of new acres were planted with row crops and orchards, the artesian wells gradually faded into history. The underground water table receded as farmers regularly pumped more water than Nature could replace. By the second decade of the Twentieth Century the average depth to ground water was fluctuating wildly in a feast-or-famine pattern. A two-year dry spell in 1912 and 1913 saw the water table plummet. Then World War I, creating an exceptional demand for fruits and vegetables, exacerbated the problem. By 1920, some seventeen hundred new wells were being drilled each year.

Conservation efforts lagged, however, because of an erroneous public perception that the underground was an inexhaustible water source. Realization of an impending shortage dawned slowly. On September 27, 1921, Santa Clara County voters struck down a proposal to form a water conservation district, but planning moved ahead under a non-governmental committee. The essential blueprint for the Valley's conservation effort was embodied in a 1921 report prepared for the committee by engineers Fred H. Tibbetts and Stephen E. Kieffer. In 1926 the committee was formalized as the Santa Clara Valley Water Conservation Association.

The growing specter of water shortage was ironically accompanied by a converse problem of flooding, as the Valley's unchecked streams turned to torrents that overflowed their banks in winter, wasting into southern San Francisco Bay. The fundamental strategy of Tibbetts and Kieffer was to attack the twin problems—scarcity and flooding—as one. They recommended upstream damming of the Valley's creeks and rivers to catch their winter runoff, which could be released later for percolation through downstream gravel beds to recharge the depleted underground aquifers.

For 30 years after the Tibbetts-Kieffer report, the Valley's efforts to stave off water shortage would rely almost exclusively on its recommendations. Percolation, as a means of distributing and conserving recaptured floodwaters, was a radical innovation, and Santa Clara Valley became a pioneer.

A towering figure appeared on the water conservation scene in the 1920s in the person of State Senator Herbert C. Jones. He would remain at the forefront for a half-century and play a key role in San Felipe.

Herb Jones, an austere Quaker who exuded dignity, was a progressive and a conservationist in the Theodore Roosevelt mold. A political maverick, he had entered the Legislature as a young lawyer in 1913 at the height of the Hiram Johnson reform era. He had become commanding figure in the State Capitol, widely mentioned as a potential governor. In 1914 he had set a crossfiling record by running for re-election in the primaries of four parties—Republican, Democratic, Progressive, and Prohibition—and winning them all.

Senator Jones' enthusiasm for water was matched only by his abomination of alcohol. During the dry years of the Eighteenth Amendment he sponsored numerous measures to enforce it, notably the "Jones anti-still bill," which made the possession of a still, or its parts, a felony.

The 1921 election to set up a water district was held pursuant to an enabling act authored by Jones. Although the election failed, he nevertheless remained for the next half-century as lawyer, adviser, strategist, and chief spokesman for the Valley's water conservation forces.

Gradually, public recognition of the need for conservation grew, as the water table continued to recede. The story was told in the record books of Campbell and Budlong, a San Jose manufacturer of deep well turbine pumps. When the firm went into business in 1919, the average pump setting on wells north of Coyote was 70 feet below the surface. By the spring of 1924 it was 100 feet; by mid-1929, it had reached 150 feet.

Two additional perils, besides shortage, became increasingly evident as the water table dropped. Wells near the Bay were going brackish, as saltwater seeped into the depleted aquifers. And the floor of the Valley was sinking, as hydraulic pressure was drawn from under it. A surveyor's bench mark at First and St. James Streets, outside the County Courthouse, lost nearly four feet in elevation, from 98 feet to just over 94, between 1911 and 1929.

Public sentiment by now had turned around; it clearly favored corrective action. Another election to form the Santa Clara Valley Water Conservation District (SCVWCD), comprising the Valley floor north of Coyote, was held November 5, 1929, under a new enabling act sponsored by Jones. The proposition carried by a nine-to-one landslide, 5,398 to 604.

Jones amended the enabling act in the Legislature's next session to increase the district's bonding and taxing powers, and the landmark measure remains on the books as the Water Conservation Act of 1931.

For the first two decades of its existence, the SCVWCD devoted virtually all its energies to the implementation of the Tibbetts-Kieffer blueprint. But the district stumbled with the first steps in 1931. With the shadow of the Great Depression overhanging the Valley, a $6-million bond proposal to build the first dams went down to a seven-to-one defeat at the polls. Not until June 19, 1934, did the voters approve a bond issue, in the amount of $2.4 million, to be augmented by a $673,000 grant from the Public Works Administration.

The first six dams—Almaden, Calero, Coyote, Guadalupe, Stevens Creek, and Vasona—were built in 1935 and 1936, holding a total of 44,000 acre-feet of water. Their performance, as the water was released for gradual percolation, was impressive. Between 1934 and 1943 the maximum annual depth to water, in a sample well at West Santa Clara Street and Delmas Aenue, bounced back from 117 feet to less than 40 feet.

It became clear in the 1940s, however, as the post-war boom got under way, that the first dams were not enough. An agonizing dry period, with rainfall below normal in 12 of the 13 years from 1943 to 1955, underscored this. Again the subterranean lake fell away. A test well at First and Santa Clara Streets dropped 37.5 feet in four months during 1947. Many orchard wells were going dry.

More bonds were voted—$2.5 million in 1947 for a dam on Los Gatos Creek south of Los Gatos,and $3 million in 1949 for a second one on Coyote Creek east of Morgan Hill. The proposed Los Gatos dam, initially called "Windy Point" after the mountain spur abutting it, was re-christened "Lexington," for one of two mountain villages it would inundate (the other being Alma). The new dam on the Coyote was given the name of Leroy Anderson, a pioneer conservationist, who with Jones had spearheaded the Santa Clara Valley water drive throughout the 1920s. Together, Lexington and Anderson Dams would impound 111,000 acre-feet of water—nearly triple the combined capacity of all six dams already built.

Nothing came easy. The Lexington bonds were approved only after a series of bruising political battles, the first of which pitted the water district against the State Division of Highways. Lexington Dam, planned since 1931, would flood the old two-lane Santa Cruz Highway then in use. Back in 1933, when the state had been getting ready to widen the road, it had rebuffed the district's pleas for a higher alignment skirting the future reservoir. Now, with the dam's construction imminent, the rerouting would have to be undertaken at a much greater cost.

A $2,475,000 appropriation bill to pay for the road relocation, introduced in Sacramento by Assemblyman John F. "Jack" Thompson (later state senator), struck a snag in the Senate Transportation Committee. Many years later Thompson revealed how he got it unstuck. The committee was chaired by Senator Randolph Collier of Yreka, who was then pushing the landmark Collier-Burns state gas tax bill to finance roads—the measure which would earn him the sobriquet "Father of the Freeways." He needed another vote to get his measure through the Assembly. A deal was struck: In exchange for Thompson's "aye" vote on the gas tax, Collier let the rerouting bill out of his committee. Once on the Senate floor, it passed without a hitch, and Governor Earl Warren signed it on July 17, 1947.

The next problem was with the San Jose Water Works, which owned or controlled more than 10,000 acres of the Los Gatos Creek watershed and was then preparing to build its own dam at Austrian Gulch, upstream from Lexington. The SJWW submitted a $1,254,000 bill for its holdings which allegedly would be flooded or otherwise harmed by the Lexington project. When the district asked for an inventory of the threatened property, the utility firm at first refused.

"Are we to be cross-examined? You have our engineers' figures; why don't you take them?" SJWW president Ralph Elsman brusquely demanded.

"We just want to know what we're paying for," the water district's negotiators responded.

Other opposition to Lexington cropped up in the Town of Los Gatos, a mile and a half downstream, where there were real if unfounded fears that a rupture of the dam might one day pose a flood peril.

Anderson Dam, completed in 1950, and Lexington, finished in 1952, slowed but did not halt the overdraft on the underground water table. The county's population had increased 66 percent since 1940 and was passing the 300,000 mark, and growth was speeding up, not slowing down. By now the depth to water was fluctuating between 120 and 160 feet, far below the 118-foot low that had seemed disastrous in 1935.

To Herb Jones and others it became clear that the recapture of local water alone would not suffice. Imported water, in vast quantities, was essential.

AS THE WELLS ARE DEEPENED, 3,500 ACRES SUDDENLY DIE

To the South, in some parts of San Benito County, the problem for a long time had been too much water, not too little. The Balsa district north of Hollister had what the natives called a "perched water table" just below the surface.

"In the early 1940s you couldn't put a post hole down before July or August without having it fill up with water," remembers George Thomas, who owned about 800 acres there. His property was good for grazing only.

Elsewhere in San Benito County, shallow wells in the range of 50 to 75 feet generally sufficed. But by the end of the decade, the water table around Hollister and San Juan Bautista was dropping, just as it was around San Jose. Farmers deepened their wells, and as they reached depths of 150 to 300 feet, disaster struck.

Near Hollister, in a 3,500-acre area between Fairview Road and the Diablo foothills, healthy apricot and prune orchards, walnut groves, and vineyards began mysteriously to wither and die. A visiting congressional delegation was dismayed when shown rows of dead trees.

The killer, it turned out, was boron, a nonmetallic element useful in metallurgy and as a gasoline additive, but lethal to crops. In irrigation water boron seals the soil, keeping nutrients from reaching the plants. The deeper aquifers proved heavily laced with it.

Thus as mid-century approached three of California's prime growing areas—Santa Clara County, San Benito County, and the west side of the San Joaquin Valley—faced separate but similar water problems, each demanding a new supply from afar.

Drouth and scarcity were nudging the three regions toward a community of interest that would bring about the construction of the San Luis Project within twenty years and its offshoot, San Felipe, within forty.

At the time however, all this was seen but dimly, imperfectly, and by few.

HERB JONES SETS HIS SIGHTS ON CENTRAL VALLEY WATER

If Santa Clara and San Benito Counties had now reached the point of importing a major water supply, two overriding questions arose: Where from: and How?

Until this time the only outside water used in Santa Clara County was a relative trickle from San Francisco's Hetch Hetchy Aqueduct. Several small cities in the north part of the county had tapped into the Hetch Hetchy lines, which looped southward around the end of the Bay on its route from Yosemite National Park. One proposal now was to step up local Hetch Hetchy purchases greatly, to replace some 18,000 acre-feet of municipal and industrial water being pumped from the underground each year. Immense legal and political obstacles stood in the way of this idea, however.

Under the federal Raker Act of 1913, San Francisco could sell surplus Hetch Hetchy water to public agencies only, and the San Jose Water Works—by far the heaviest pumper from the subterranean supply—was a private corporation. In 1948 two San Jose City Council candidates, Alden Campen and Robert Doerr, ran on a platform of buying the water company, to make San Jose an eligible client of Hetch Hetchy. The cry of "Socialism!" went up in the campaign. Campen was beaten, but Doerr was elected and immediately called for a study of his proposal. To no avail; the Water Works, with a solid record of service, a loyal clientele, and a lot of clout at City Hall, fought back. Doerr's idea was too hot a potato, and he could never bring it off.

There were other ideas sporadically considered: One would have dammed Soquel Creek and other Santa Cruz County streams and diverted their runoff either through or over the mountains into Santa Clara Valley. There were other large- and small-scale water development and transfer schemes under consideration by people in the Valley and elsewhere in the state.

Tantalizing as some of these dreams appeared, there was really only one place to turn for a large-scale, long-range solution to Santa Clara County's water shortage: to the snow-fed rivers of the north. Nowhere else in California did surplus water exist in the enormous quantity demanded. The nearest of these streams was more than 100 miles from San Jose.

Herb Jones understood this. He had sat in the State Legislature when it had debated the first Central Valley Project authorization bill; indeed, he had had a hand in writing it.

Now that Shasta Dam had harnessed the upper Sacramento River, the next big northern rivers to be tamed were the American, the Trinity, and the Feather.

Jones set his sights on the American River, a Sacramento tributary gushing out of the Sierra west of Lake Tahoe. As counsel for the Santa Clara Valley Water Conservation District, he became a leader in the American River Development League. This was a booster organization representing business, industry, labor, and civic interests in a half-dozen water-deficient counties where water from the American River might help. The league's president was Harold T. "Bizz" Johnson, mayor of Roseville—a man destined to appear later in the San Felipe saga, in a much different role.

On January 12, 1948, Jones had the SCVWCD file applications for 200,000 annual acre-feet of American River water. Companion filings were made, probably at Jones' behest, by the City of San Jose, the Campbell Water Company, the San Jose Water Works, and the Hollister Irrigation District. These filings gave Santa Clara and San Benito Counties an early foot-in-the-door priority for Central Valley water—a priority which would become immensely significant in the years ahead.

Since about the turn of the century, state and federal engineers had contemplated a dam at Folsom, to impound the American River waters which posed an annual flood threat to the state capital some 20 miles downstream.

"This project has been studied, restudied, reviewed, and re-reviewed," Reclamation Commissioner Michael W. Strauss told a congressional committee.

Congress had already authorized Folsom Dam in 1944, to be built and operated by the Army Corps of Engineers as a flood control project only, impounding 355,000 acre-feet. Pressed by the American River Development League, however, Representatives Clair Engle of Red Bluff and George P. Miller of Alameda in 1947 introduced a bill re-authorizing Folsom as a multi-purpose dam with enlarged capacity of a million acre-feet, built by the Bureau of Reclamation.

The Miller-Engle proposal precipitated a furious fray between the Corps and the Bureau, the issue being which agency should build and control the dam. The battle was compounded by strife between public power advocates and the Pacific Gas and Electric Company, which was wary of the the enlarged dam's proposed hydro-electric features. Moreover, large landholders in the Central Valley, who had their eyes on the water that the Army proposed to impound, looked sourly on the prospect of a dam controlled by the Bureau and therefore subject to the "160-acre limitation" of federal reclamation law. This historic provision, dating back to 1902 and intended as a safeguard against monopoly, denied Bureau water to any private tract of land exceeding that size.

President Truman stepped in to settle the turf squabble with a compromise (which Alden Campen, a member of the American River Development League, says Jones engineered) giving everyone a "piece of the action." In a message to Congress January 12, 1948 (the same day as the SCVWCD rights filing), the President recommended that the Corps of Engineers build the dam and then turn it over to the Bureau of Reclamation for operation as a part of the Central Valley Project.

"WE HAVE TO GIVE SOME CREDIT TO THE ALMIGHTY."

Four days of hearings on the American River Basin Development bill, as the compromise Folsom proposal was called, began in Washington March 22, 1948, before a subcommittee of the House Committee on Public Lands.

Engle told the subcommittee why the bigger dam was needed: "In the event that the Sacramento and American Rivers crested at the same time at the City of Sacramento, the Capitol dome would just be looking out of the water... If we are going to have this flood control, let's stick a little more cement on this dam, back the water up and hold it a little longer, and release it slowly over the dry and arid lands of California which need the irrigation."

By this time, Representative Jack Z. Anderson of San Juan Bautista had joined Miller and Engle as a co-author of the American River bill, which would become the Miller-Engle-Anderson Act.

There was an extraordinary all-in-the-family rapport between the offices of Anderson, a Republican, and Engle, a peppery Democrat from Red Bluff, both destined to become major figures as the San Felipe story unfolded. Anderson, an arch-conservative pear grower, had first been elected to Congress in 1938, using campaign photos that showed him wearing a hat, because he was cue ball bald. His secretary in Washington was a San Jose woman, Lucretia Marie Caldwell. Engle, a two-term Tehama County district attorney had arrived in the House in 1943 with a calculated homespun-cowboy image. He courted and wed Lucretia. Moreover, Anderson and Engle were companions in the House "gym crowd" of paddleball players, a group close to Speaker Sam Rayburn.

Jones testified for Santa Clara Valley before the subcommittee, describing at length the local conservation effort. He told how the Valley's ground water had receded precipitously and then bounced back some 80 feet for a time, after the first dams were built.

"Do you give credit for that rise in your water table wholly to the construction of the reservoirs?" asked Representative Wesley A. D'Ewart, a Republican from Montana.

"Well, of course, we have to give some credit to the Almighty," Jones replied modestly.

To bring the American River water more than 100 miles to Santa Clara Valley, Jones suggested a conduit through Livermore Valley, close to the route that the state's South Bay Aqueduct would take later, but continuing westward through Niles Canyon. It is noteworthy that he did not even mention the possibility of deliveries through Pacheco Pass. But in 1948 the great reservoir at San Luis, on which such deliveries would depend, was only a hazy mirage.

"This is a very desperate matter in California," Jones told the subcommittee. "If you could be in the office of the water district and see some of these ranchers come in there... they can lose a field crop— that is just the proceeds of a year. But to come in there and tell us that their wells have gone dry; that their orchards which they have been ten, fifteen, and twenty years in developing, have been wiped out—all this reflects a desperate situation. Please do not allow any procedural details or technicalities to interfere with the substance of this great need. Please give us results. There is too much at stake in the Santa Clara Valley and the rest of California to allow any longer these precious water resources to waste into the Bay."

It was more than 19 months after the subcommittee's hearing before the American River development bill, authorizing the enlarged Folsom Dam, became law. President Truman signed it on October 14, 1949. Anderson had amended it to direct the Secretary of the Interior to study ways of bringing part of the American River water to Santa Clara and San Benito Counties. Although this directive was vague and visionary, it was a landmark, recognizing the coastal valleys for the first time in law as a possible service area of the Central Valley Project.

THE WINDS OF WAR BUFFET SAN FELIPE

Less than a year after the the signing of the American River act, the Korean War broke out. It was the first of many difficulties which, over the next quarter-century, would repeatedly delay the San Felipe Project. Washington, preoccupied with the war, put most public works on hold.

Folsom Dam took seven years to build and was completed in 1956. But a series of Secretaries of the Interior under Presidents Truman and Eisenhower ignored the directive to study ways that Santa Clara and San Benito might receive its benefits.

Elsewhere, however, other events were taking place that bore directly on the Santa Clara Valley situation.

The growers on the dry west side of the San Joaquin Valley were still in bad shape. The overdraft on their vanishing underground reservoir had grown to half a million acre feet a year. Seeing the prospective San Luis Project as their best chance for relief, they went after it. In 1952 they organized formally as the 603,000-acre Westlands Water District, extending 64 miles from north of Mendota in Fresno County to Kettleman City in Kings County.

The proposed San Luis Reservoir site, straddling the Pacheco Pass Highway and circled by the eastern foothills of the Diablos, was a rangeland of grass and scrub oak, where the seasonal rainfall could be as low as 3.4 inches. The runoff from San Luis Creek, a dry gulch most of the year, would offset only a small fraction of the surface evaporation from any reservoir created. To fill their lake, therefore, the San Joaquin's west-side growers looked toward another surging stream of the far north—the Trinity. This river was a tributary not to the Sacramento but to the Klamath, carrying some eleven million acre-feet of water into the Pacific Ocean each year, near the Oregon line. The Bureau of Reclamation proposed damming the Trinity above Weaverville and diverting much of this runoff into the Sacramento River watershed via a tunnel through the Trinity Alps. Eventually this diverted water would reach the Delta, where it could be pumped into the Delta-Mendota Canal and carried south to fill the San Luis Reservoir.

In 1954 the Westlands Water District filed for rights to the Trinity's unappropriated water and urged Congress to authorize a joint Trinity-San Luis Project.* On January 5, 1955, Engle introduced the authorization bill. By now he was chairman of the House Committee on Interior and Insular Affairs, with immense influence.

The Trinity part of the project sailed through Engle's committee and both Houses of Congress, and the authorizing act for Trinity Dam was signed into law by President Eisenhower on August 13, 1955. The San Luis part encountered rough going in Washington, however, and was severed from the measure, partly because of certain events taking place in another political arena, Sacramento.

THE STATE OF CALIFORNIA BECOMES A COMPETITOR

The situation in Sacramento had been a long time in the making. It was there that the Central Valley Project had originally been conceived by the state's engineers who intended to build it. They had lost their chance in the 1930s only because the state was broke, and the federal government had taken over the CVP as a job for the Bureau of Reclamation.

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* A perennial source of confusion, regarding water delivered from the Central Valley, is the legal fiction which ascribes the supply for each service area to a particular river of origin. For convenience, deliveries are often referred to as "Shasta water," "American River water," "Trinity River water," "Feather River water," etc., depending upon the stream on which the recipient has rights. Actually, all the streams commingle in the Sacramento - San Joaquin Delta, where the major aqueducts to the south and west originate. There is no way to trace any particular gallon of Delta water to a specific point of origin.

Now, in the 1950s, the state engineer was A. D. "Bob" Edmonston, an old-timer who remembered the bad times of the 1930s and still harbored regrets about the state's surrender of the CVP to the federal government. The time had come, Edmonston decided, for the state to get back into the water business on its own.

The demand was there; dry areas from Marin to Los Angeles (including Santa Clara Valley) were crying for new water far beyond the CVP's capacity to deliver. So in 1951 Edmonston unveiled, in a thick, blue-bound volume, the Feather River Project—the massive proposal which would evolve into the California Water Plan. It called for another state-long system of dams, power plants, pumping plants, and aqueducts, as bold and imaginative as the CVP itself, which it would augment and partially parallel.

The centerpiece of the state project would be Oroville Dam on the Feather River, a tributary to the Sacramento. It would be the highest dam in the United States, towering 770 feet. It would impound 3.5 million acre-feet of runoff for timely release to the Delta, from which a 400-mile California Aqueduct would carry most of it to points south, all the way to Los Angeles and on to San Diego. A separate South Bay Aqueduct would convey a part of the water to the Livermore and Santa Clara Valleys.

An authorization bill for the Feather River Project, introduced in the 1951 Legislature, passed the State Senate but ran into trouble in the Assembly, where it was carried by Gilroy's Charles Gubser, then a freshman assemblyman.

"PG&E opposed it," Gubser remembers. "They opposed anything that was going to generate public power. The bill carried a small appropriation for planning; so it needed 54 votes in the Assembly—two-thirds. I couldn't get two-thirds; so I amended the appropriation out of it and passed it with a simple majority."

Governor Earl Warren embraced the Feather River Project, as did his successors, Governors Goodwin J. Knight and Edmund G. "Pat" Brown. The emergence of the state as a water-business competitor to the Bureau of Reclamation raised new uncertainties and controversies.

As the Feather River Project was refined and expanded on Sacramento drawing boards, its need for regulatory storage along the proposed California Aqueduct became clear. The state's engineers began eyeing covetously the San Luis Reservoir site—the same place the Bureau of Reclamation wanted to store its Trinity water en route to Westlands. In November, 1954, the state advised the Bureau that it was designating San Luis Reservoir as a unit of the Feather River Project. An ensuing contest for control of the site cast doubt over both the federal and state projects throughout the rest of the 1950s.

In 1956 the federal feasibility report on San Luis, confirming the project's merit, was routinely circulated to the State Department of Water Resources for comment before final adoption. The state's response was to propose that the federal and state government build San Luis as a joint undertaking, with a reservoir holding 2.1 million acre-feet—more than twice the capacity of the federal lake as originally contemplated.

State Director of Water Resources Harvey O. Banks, who succeeded Edmonston, and his departmental general counsel, Pat Towner, went to Washington to lobby for the partnership idea. It was a radical and unwelcome departure in the view of the Bureau of Reclamation, which had always run its own show and wanted no state meddling.

"Literally we were laughed out of town," Banks recalls. "The solicitor general of the Interior Department said it was impossible; there was no precedent—'get out and quit bugging us.' "

Political pressure would change Washington attitudes, however.

A STRUGGLE FOR CLOUT ON THE SAN JOSE TURF

The federal-state rivalry was more than just a turf battle. For water users, solid economic considerations were at stake. Large landholders looked to the state project to free them from the 160-acre limitation of federal reclamation law. Small farmers, on the other hand, saw a "cheap water" advantage in federal development, which heavily subsidized the agricultural supply.

Control of a water supply always pays a dividend in political clout. This became a major consideration in San Jose, as rival interests chose sides between the would-be state and federal water providers. On one side was the Santa Clara Valley Water Conservation District on Almaden Road, the old-line agency with its roots in the agricultural community, leaning toward a federal project. On the other side, at the Civic Center, the county supervisors were building a competing water bureaucracy. In 1951 they had formed the Santa Clara County Flood

Control and Water Conservation District, with themselves as its directors and Donald K. Currlin as manager. Originally the SCCFCWCD dealt only with flood matters; now the supervisors wanted to take over part of the Valley's water supply function as well. They began dickering with the state.

San Jose Water Works President Ralph Elsman, a hard-boiled operator, saw the political strife in cold, realistic light.

"Whoever controls water in Santa Clara County controls Santa Clara County," he said at the time.

The steam gathering behind the San Luis Project—whether it be federal, state, or partnership—vastly enhanced the water importation possibilities for Santa Clara and San Benito Counties. Back in 1948, testifying for the American River bill, Herb Jones had been able to offer only the sketchiest suggestions for routes to bring water from the Delta. Now, in the mid-1950s, there were two well-defined possibilities: (1) the South Bay Aqueduct route was well charted through Livermore Valley; and (2) if San Luis Dam were built, its enormous reservoir would reach within a mile of the Merced-Santa Clara County line and could be tapped by a Pacheco Pass tunnel.

In 1955 the SCVWCD moved to broaden its power base, forming an alliance with Alameda and San Benito Counties to expedite water importation. About that time Herb Jones was beginning to turn over his duties as the district's counsel to his young cousin, Albert T. Henley, a World War II veteran who had joined his law firm in 1947. Henley took on the job of organizing what would become the Tri-County Water Authority, pushing its enabling act through the State Legislature.

The Tri-County Water Authority, activated in January, 1956, with a wide range of powers to tax and to deal in water rights, would play a major role in setting the course of importation efforts over the next eleven years.

In 1957, Tri-County hired the San Jose civil engineering firm of Creegan and D'Angelo to compare three suggested routes for bringing Delta-Mendota Canal water west, through or over the Diablo Mountains: (1) up Del Puerto Canyon, from a point near Patterson in Stanislaus County, to the headwaters of Coyote Creek and Arroyo Del Valle behind Mt. Hamilton; (2) up Orestimba Canyon, farther south; and (3) through or over Pacheco Pass, the southernmost route of all. The engineers ruled out Del Puerto and Orestimba (the former requiring a pump lift to elevation 2,380) as uneconomical. As for Pacheco, after considering both a tunnel and a pump lift over the 1,389-foot summit, they concluded that the tunnel was attractive if annual imports were to exceed 50,000 acre-feet.

Following up on these findings, SCVWCD directors on February 11, 1958, adopted a resolution of intention to proceed with their own Pacheco feasibility study, in the absence of state or federal action on the project. The district's chief engineer and manager, J. Robert Roll, and his engineering staff under Ronald R. Esau began designing a cross-valley distribution system for the water Pacheco might ultimately deliver.

BUILDING A FIRE UNDER UNCLE SAM

About this same time in 1958, Tri-County was trying to build a fire under a lethargic federal government. The U.S. Interior Department (of which the Bureau of Reclamation is a part) had never moved on the nine-year-old directive of the Miller-Engle-Anderson Act to develop a plan for delivering CVP water to Santa Clara and adjoining counties. To give the Secretary of the Interior a nudge, Henley sought a congressional joint resolution renewing the directive and specifying that the studies in question be conducted under contract to the Tri-County Water Authority. Gubser, having left the Legislature to succeed Jack Anderson in Congress in 1953, carried the resolution, but as a second-term Republican in the Democrat-controlled House, he was short on political muscle. No matter: the old friendship ties between the Anderson-Gubser office and Democrat Clair Engle's office were still strong.

"Clair put in the resolution too," Gubser recently recalled. "He had the power to do anything he wanted. He was a member of the majority, and he was chairman of Interior and Insular Affairs. The House passed Clair's resolution, and then he amended the total text of it into my number, to give me the credit."

This resolution, in retrospect, was landmark legislation. The Miller-Engle-Anderson Act had left open the routing of the proposed aqueduct to the coastal valleys. But the Engle-Gubser resolution, in its third "whereas," declared, "The most feasible means of importing water into Santa Clara, San Benito, Santa Cruz, and Monterey Counties appears to be by way of the Pacheco Pass route." This was the first specific reference in law to the route which would later be known as San Felipe.

Finally, the Secretary of the Interior took notice. On June 22, 1959, pursuant to this resolution, the Bureau of Reclamation entered into a contract with the Tri-County Water Authority (in which Alameda County was ultimately replaced by Santa Cruz and Monterey counties) for studies leading to a Pacheco Pass aqueduct feasibility report. The Authority gave the bureau a $50,000 check to cover its half of the initial funding.

The federal feasibility studies would take four years. As noted at the outset, they were far from complete in 1960 when Congress passed the authorizing act for San Luis.

A SMUDGE OF BLACK SMOKE IN THE FEATHER RIVER CANYON

In Sacramento meanwhile, the California Water Project—essentially an expanded version of the Feather River Project unveiled in 1951—was reauthorized by the Legislature in 1957, with its promise of South Bay Aqueduct water for the Santa Clara Valley. Governor Goodwin J. Knight was able to tuck a few million dollars into his tight state budget for the preliminary work.

On Saturday morning, June 1, 1957, a special train bearing celebrants from all parts of California left Sacramento, heading for Oroville some 70 miles to the north. Frank Polak, chairman of the Tri-County Water Authority, represented Santa Clara Valley.

It was a festive freebie trip for most aboard. (But state senators and assemblymen took pains to pay, lest they run afoul of the state constitution's quaint provision, dating from Governor Hiram Johnson's railroad-busting era, that any legislator accepting a train pass automatically forfeited his office.) The "Damsite Special" chugged up the Feather River Canyon to a place where a whitewashed strip running from one rim to the other marked the future axis of Oroville Dam.

Governor Knight, standing on a picnic table, pushed a dynamite plunger, whooping "Let the dirt fly!" Seconds later, the thud of an explosion five miles further up the canyon and a smudge of black smoke against the eastern sky signalled that ground had been broken.

Knight's Oroville Dam groundbreaking was essentially symbolic. The only money on hand was a $25-million appropriation for relocating the Feather River Highway and the Western Pacific Railroad; there was nothing for the dam itself. It remained for Governor Edmund G. (Pat) Brown, who succeeded Knight in January, 1959, to shift the California Water Project into high gear.

Brown threw the full effort of his administration behind the project. He picked Sen. Hugh Burns, a genial undertaker from Fresno, and Assemblyman Carley V. Porter, an amiable history teacher from Compton, to carry a funding bill. The Burns-Porter Act, a $1.75-billion bond measure, went to the voters in November, 1960, amid great controversy. Northern counties, fearful that their water would be "stolen" by the South, opposed it. So did doctrinaire liberals, upset because Brown had resisted efforts to saddle the California Water Project with a federal-type "160-acre limitation" to break up large landholdings. During the campaign, Brown's rallying cry was, "Water with problems is better than problems without water."

The water bonds barely squeaked through with 51.5 per cent approval, 3,008,328 to 2,834,384. But with money in the bank, the California Water Project was, at last, reliably on its way.

THE TIME TO "PUT UP OR SHUT UP" DRAWS NEAR

Throughout this period, with the ultimate means of water importation still unsettled in Santa Clara County, the rivalry between the Board of Supervisors and the old-line water district loyalists was growing ever more bitter. Each side had its champions in the county's delegation at Sacramento. Assemblyman Bruce F. Allen (later a judge) lined up with the supervisors, and Assemblyman Clark L. Bradley (later state senator) supported the SCVWCD. Allen went so far in 1959 as to introduce bills abolishing the water district and the Tri-County Water Authority altogether, tossing them quietly into the hopper while the San Jose Mercury News was on strike. Few persons back home ever heard of the measures; the water district got Bradley to torpedo them.

The strife was complicated by the conflicting interests of municipalities throughout the county. North County communities already buying

Hetch Hetchy water—notably Sunnyvale—opposed any importation plan whose tax burden they might have to share.

In San Jose Councilman Robert Doerr was still plugging away for municipal purchase of the San Jose Water Works, so that the city could hook onto Hetch Hetchy. No way, said Water Works President Ralph Elsman, promising to fight municipal ownership to the last ditch.

The growing danger was that the internecine warfare would undercut the county's chances for outside water from any source. Statewide demand exceeded the potential supply from all pending projects, and dry parts of the state from Marin to Southern California were in competition for every drop of water in sight. Yet Santa Clara County, its peril growing with each season, was unable to present a united front.

Events were racing toward the time when the county would have to put up or shut up. The Metropolitan Water District of Southern California had already signed up for 1.5 million acre-feet of the 3.5 million behind Oroville Dam, and the rest was going fast. Unless Santa Clara acted soon, it might forfeit its claim to Feather River water for all time.

In 1960 the county supervisors and the water district tried to resolve their rivalry by jointly hiring a panel of outside experts to choose the best water importation means and recommend which agency should control it.* The panelists decided in favor of the South Bay Aqueduct, to which the Board of Supervisors was wedded, due for completion in 1964. They recognized that the Pacheco conduit would also be needed eventually, but its completion was not expected before 1968-70, an era that then seemed intolerably remote.

The water district, disappointed, repudiated the findings, coming up with a new gambit: Three dry winters, the district declared, made it impossible to wait for either the state or federal project. What was needed was a crash program—a hurry-up version of the Pacheco project that the district would build itself. Water would be taken directly from the Delta-Mendota Canal near Los Banos, without waiting for San Luis Reservoir, and pumped over the Pacheco Pass summit, eliminating the need for a tunnel. The whole 69-mile pipe would be laid in seven months.

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* Panel members were John S. Longwell, retired manager of the East Bay Municipal Utility District; Samuel B. Morris, former chief engineer and general manager of the Los Angeles Department of Water and Power; and S. T. Harding, professor of engineering at the University of California at Berkeley.

This idea, seen as a last-gasp try to scuttle the state project, was rejected by public opinion, and the stalemate went on. By July, 1961, the *Mercury News* found the situation intolerable, reporting:

> *Ever since the fantastic growth spiral began here a dozen years ago, political observers have predicted that the area's sprawling, disjointed governmental structure would sooner or later break down under its own weight. That breakdown has finally come. In the face of a dangerous water shortage, those in responsible positions have demonstrated total inability, so far, to deal with the problem. Timely action has been utterly blocked by political bickering... The essential foul-up is that too many govermental cooks are spoiling the watery broth.*

The newspaper, which until then had maintained neutrality in the water wars, came out strongly for the "South Bay Aqueduct first," the sooner the better. The county supervisors should run it, the paper said, because they were "the only group with sufficient legal muscle to knock heads together."

This assessment proved sound. The supervisors, emboldened by the newspaper's stand and alarmed by further falling of the water table to another all-time low, finally faced the issue. They overrode political sniping from all sides and voted to contract for 88,000 acre-feet (in later years this figure would increase to 100,000 acre-feet) of South Bay Aqueduct water yearly, acting in their ex officio capacities as directors of the county flood control district. The contract was signed by Governor Pat Brown at ceremonies in San Francisco on November 20, 1961.

The Pacheco project had lost a round to the South Bay Aqueduct and had been pushed an unknown number of years into the future. The water district had lost a round to the Board of Supervisors; but the air had been cleared.

It was accepted now, as the panel of experts had concluded, that neither project alone could satisfy the county's ultimate water need; both would be required ultimately. With this recognition, the jealousies and animosities began to fade. The fading continued until 1968, when the two competing districts—the county flood control district and the valley water district—merged. Today's Santa Clara Valley Water

District (SCVWD), with five directors elected and two appointed by the Board of Supervisors, is the offspring of the merger.*

In 1956 Harvey Banks' proposal for a federal-state partnership on San Luis Dam had received a chilly reception in Washington. The Bureau of Reclamation ran its own show; it had never teamed up on any project, and it did not intend to do so now.

Four years of subsequent lobbying and politicking—plus the obvious efficiency and economy of a joint undertaking—had dissipated the federal obstinacy, however. The San Luis authorizing act signed into law by President Eisenhower on June 3, 1960, embraced the Banks formula in toto. San Luis would be a federal-state joint-use facility, with its reservoir more than twice the size originally contemplated for a federal project alone.**

Most importantly from the standpoint of Santa Clara and San Benito Counties, the act authorized "Gubser's pipe"—the first 1.8 miles of the Pacheco Tunnel.

Final design work on San Luis started in 1961, and the state-federal contract for construction, estimated to cost $433 million, was signed by Governor Pat Brown in San Francisco on December 29 of that year. Secretary of the Interior Stewart Udall signed for the federal government the following day.

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* Originally the merged district was called the Santa Clara County Flood Control and Water District. The name was changed to Santa Clara Valley Water District in 1974. For purposes of clarity, all future references to the combined district will use the present name (or initials SCVWD).

** As completed, San Luis Reservoir holds 2,038,000 acre-feet, or approximately 664 billion gallons of water. The State Department of Water Resources has calculated that if it were filled with beer, it would provide 27, 654 six-packs, plus four cans, for every man, woman, and child in the United States.

“IT IS A PLEASURE FOR ME TO… HELP BLOW UP THIS VALLEY.”

August 18, 1962, dawned bright and hot in the San Joaquin Valley. By mid-morning the two-lane Pacheco Pass Highway was clogged in both directions as 10,000 to 15,000 spectators made their way by car and bus to a barren hillside west of Los Banos for the San Luis Dam groundbreaking. The thermometer climbed to 92 degrees as the sun beat down on the sere, brown grass.

The Twelfth Naval District Band from Treasure Island played during the morning, as Boy Scouts roamed the standing crowd (there were no seats) selling sandwiches and soft drinks.

At 11:30 a black speck appeared in the eastern sky, growing larger until it was discernible as a helicopter. It landed nearby. From it dismounted President John F. Kennedy, in buoyant spirits after a flight from Yosemite where he had spent the night. The president joined Governor Brown, U.S. Senators Thomas H. Kuchel and Clair Engle, and an assemblage of other dignitaries on the 100-foot speakers' platform. (Engle had moved from the House to the Senate in the 1958 election.) Introduced by Representative B. F. Sisk of Fresno, Kennedy approached the microphone and said:

“It is a pleasure for me to come out here and help blow up this valley.”

A few minutes later Kennedy and Brown pushed polished brass plungers to detonate the explosives of the groundbreaking. It was evident that neither the president nor the governor had more than a vague idea beforehand of the spectacle they would set off.

First, twin puffs of smoke, marking the shoulders of the future dam, appeared on the distant hills to the left and right, three and a half miles apart. These charges ignited a line of smoke grenades along the dam's axis. Sprays of green, red, and purple smoke, erupting in rapid series, raced from each side to meet at the dam's midpoint. At that moment a helicopter raced across the canyon trailing red smoke, tracing the crest of the dam, 320 feet above the floor, with the precision of a draftsman's pencil. The effect was to “materialize” the dam within a few seconds in multicolored smoke, precisely where it would appear in earth and rock five years later. The apparition hung in place for 20 seconds before light breezes began to blow it away. It was a show never forgotten by anyone who was there.

The groundbreaking was not without a zany moment. On the platform next to Engle was Assemblyman Charles "Gus" Garrigus of Reedley, a genial Shakespearean scholar who would later become California's poet laureate. He had written an "Ode to the San Luis Dam" for this occasion — a tribute to the California spirit and tradition. One couplet recalled the forty-niners:

When Sutter's golden gleam flashed around the world
The hot-eyed hordes poured in from every clime.

In the open setting, with breezes dissipating the sound, the platform guests behind the loudspeakers could scarcely hear each other's speeches. When Garrigus returned to his seat after reading his poem, Engle congratulated him: "A great poem, Gus. You didn't pull any punches, did you?"

"What do you mean, Senator?"

"I really liked that part about the hot-eyed whores coming here from all over the world!"

The first contract for the San Luis project, to reroute the Pacheco Pass Highway around the future reservoir, was awarded the same month as the groundbreaking. The contract for the dam itself followed on January 8, 1963. Construction continued for for almost five years, until August 4, 1967.

Three thousand persons — a fraction of the throng that had attended the groundbreaking — gathered at the site for the dam's dedication on April 20, 1968.

The filling of San Luis Reservoir began on April 12, 1967, four months before the dam was finished, and continued for more than two years, until May 31, 1969. The resultant sea, 304 feet deep with 12,700 surface acres, is seven and a half miles across, north to south. On misty days it is like an ocean, with seagulls, five-foot waves, and its horizon lost in infinity. Its 65-mile shoreline, shaped by the contours of the surrounding hills, is crinkled with coves, inlets, and promontories bearing such names as Honker Bay, Dinosaur Point, Dinosaur Cove, Coyote Bay, Portuguese Creek, The Boot, Quien Sabe Point, and Catfish Flats.

Rising from the water off Dinosaur Point is the gently rounded crown of Tunnel Island, with a shaft descending to the first 1.8 mile leg of the Pacheco Tunnel, more than two hundred feet below. Among the few who went into the tunnel before San Luis was filled was Violet V. Enander, then water district clerk of the board of directors. "In those days women just didn't go into tunnels. The miners considered it bad luck, but I figured I deserved the trip as much as anyone."

SAN FELIPE IS "ENGINEERINGLY FEASIBLE AND ECONOMICALLY JUSTIFIED"

The long-awaited federal feasibility report on the Pacheco Pass aqueduct was completed by the Bureau of Reclamation in May 1963; submitted to Secretary Udall in March 1964; and approved by him on December 3, 1964.

The project was found to be "engineeringly feasible and economically justified," with a benefits-to-costs ratio of 2.97-to-1. The report said the Bureau could deliver 293,000 acre-feet of uncommitted Delta water, via the California Aqueduct and San Luis Reservoir, to a 448,000-acre service area in Santa Clara, San Benito, Santa Cruz, and Monterey Counties. The water rights would derive from the Trinity River diversion (the SCVWD having abandoned its American River filings in favor of the Bureau). The 293,000 figure was neatly balanced against the service area's estimated need for 273,260 acre-feet plus an allowance of 19,740 acre-feet for loss by evaporation and seepage. The Bureau estimated San Felipe's construction cost at $89 million, including local distribution systems. Water would be delivered at the Pacheco Tunnel outlet at $7 an acre-foot for agriculture, $30 for municipal and industrial use.

The report bore one surprise: The Pacheco aqueduct plan had been formally christened. It was now the "San Felipe Division of the Central Valley Project." The San Felipe name caught everyone off guard.

"I saw the report and didn't know what it was," Henley remembers.

The Bureau had dug back into history for its designation, choosing not the name of Francisco Perez Pacheco, the ranchero who had owned the aqueduct area, but the name of his 35,504-acre land grant. The *Ausaymas y San Felipe* grant had been conferred in 1833 by Mexican Governor Jose Figueroa. Two other landmarks east of Gilroy, San Felipe Lake (known to natives as Soap Lake) and San Felipe Road, already bore its saintly name.

The proposed service area for San Felipe was out of conformity with the territory of the Tri-County Water Authority, which embraced Alameda County along with Santa Clara and San Benito Counties. Alameda stood to gain nothing from the project as the engineers envisioned it; so in 1966 the Tri-County agency, which had done so much to further the project, dissolved. It was replaced by the San Felipe Committee, a joint-exercise-of-powers agency comprising water districts in Santa Clara, San Benito, Santa Cruz, and Monterey

Counties. The committee was first chaired by Santa Clara County Supervisor Sig Sanchez (later an SCVWD director), succeeded in 1968 by Supervisor Frank J. Sabbatini of San Benito County. Henley was general counsel. It was an effective lobby for San Felipe.

"It was our responsibility to see that funding came along for the project," says James J. Lenihan, the committee's vice chairman (and currently chairman of the SCVWD board). "That was our main purpose in life."*

Nearly two years slipped by after Udall approved the San Felipe feasibility report while it made its way through the Washington and Sacramento bureaucracies, winning approval by the state and the Bureau of the Budget. It finally reached Congress on September 26, 1966.

Gubser introduced a San Felipe authorization bill early in 1967, with Representatives Don Edwards of San Jose, Burt Talcott of Salinas, and B.F. Sisk of Fresno as co-sponsors. Sen. Thomas H. Kuchel offered a companion measure in the Senate.

THE SAN FELIPE HEARINGS: FRIENDLY—WITH SOME POLITICS

San Felipe authorization hearings began June 22, 1967, in the high-ceilinged, ornate hearing room 1324 of the Longworth House Office Building, before the Irrigation and Reclamation Subcommittee of the House Committee on Interior and Insular Affairs.

Presiding, on the horseshoe dais, was Representative. Harold T. Johnson—the same "Bizz" Johnson who, as mayor of Roseville and president of the American River Development League, had worked with Herb Jones to pass the Folsom Dam (Miller-Engle-Anderson) bill in 1948. Johnson had been elected to Congress in 1959, after serving

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*The San Felipe Committee disbanded in 1986, its mission accomplished.

in the State Senate for nine years. Also present, as a witness representing San Benito County, was former Representative Jack Z. Anderson, co-author of the 1948 bill, which had given the coastal valleys their first tenuous claim on Central Valley water. Another lawmaker who had been in the fight from the start was missing: Sen. Clair Engle had died in 1964 after surgery for a brain tumor.

The specter of inflation, which would haunt the San Felipe Project for the next 20 years, became immediately evident as the hearings began. A statement by Assistant Secretary of the Interior Kenneth Holum, read into the record, now pegged the construction cost at $98.3 million, up 10.4 per cent from the $89 million estimate of the three-year-old feasibility report.

The tenor of the hearings was friendly, but the colloquy was penetrating and at times abrasive.

Representative Sam Steiger, an Arizona Republican, wanted to know if San Felipe had any important foes within its service area. Gubser and Edwards said they knew of none.

There was a normal quota of political posturing. Representative Phillip Burton, liberal San Francisco Democrat, crossed swords with Holum and Reclamation Commissioner Floyd Dominy on the issue of the 160-acre limitation. This historic maximum acreage for ownerships receiving Bureau water, as a means of breaking up large landholdings, was an article of faith with liberals. In his opening statement, Gubser had acknowledged a "perplexing problem" with the limitation in Santa Clara County, where the imported water would mingle underground with the local supply rather than be distributed by surface canals.

Burton wanted to know how the Bureau intended to deal with the problem, and his grilling caught the Interior Department spokesmen in conflicting answers.

In answer to a Burton question, Holum and Dominy first said they intended to implement the acreage limitation fully, whether San Felipe's water was distributed on the surface or underground.

But two pages further on in the transcript, Dominy noted approvingly that the Senate version of the San Felipe authorization had already been amended to exempt percolated groundwater in Santa Clara County from the limitation. Holum chimed in that the situation was "extremely complicated and difficult." The San Francisco congressman pounced on him.

"It wasn't complicated about six minutes ago," Burton snapped. "I hope it hasn't become complicated in the last six minutes."

Holum responded that if the 160-acre rule were strictly construed, "You could look at it from one point of view and say the project will not be built."

The give and take ended inconclusively. As the cold transcript reads 20 years later, it would seem that Burton had San Felipe on the ropes. Not so, says Gubser.

"Phil was smiling all the time," he recalls. "He knew he had to play to the gallery."*

In another strident exchange, Representative Theodore R. Kupperman, a New York Republican, questioned whether San Felipe should be a federal project at all.

"Why can't the State of California take care of this problem itself?" he asked.

Kupperman drew a sardonic rejoinder from Colorado Democrat Wayne Aspinall, who seven years earlier had accepted Gubser's San Luis bill amendment that allowed for the Pacheco Tunnel.

"I might ask my good colleague from New York," Aspinall said, "why doesn't the State of New York, the City of New York, take care of its housing problems by itself?"

Kupperman backed off.

Another flare-up came when Representative Morris K. Udall of Arizona, brother of the Secretary of the Interior, pitted San Felipe against the stalled Central Arizona Project.

"All the projects in the West can go ahead piecemeal." Udall complained. "But for the one most desperately needed project in the West, the Central Arizona Project, we are told that we have to slay dragons, move mountains, build dams, take care of the needs of the whole region for 50 years before we can go ahead... I think this bill ought to go forward only when our bill goes forward."

This time it was Representative Craig Hosmer, a Southern California Republican, who took umbrage.

"I don't know whether this is a declaration of war or an invitation to initiate a pre-emptive strike on California," Hosmer said, "but I must say that if the gentleman from Arizona is under the delusion that all of Arizona's water problems are in California or elsewhere, and none of

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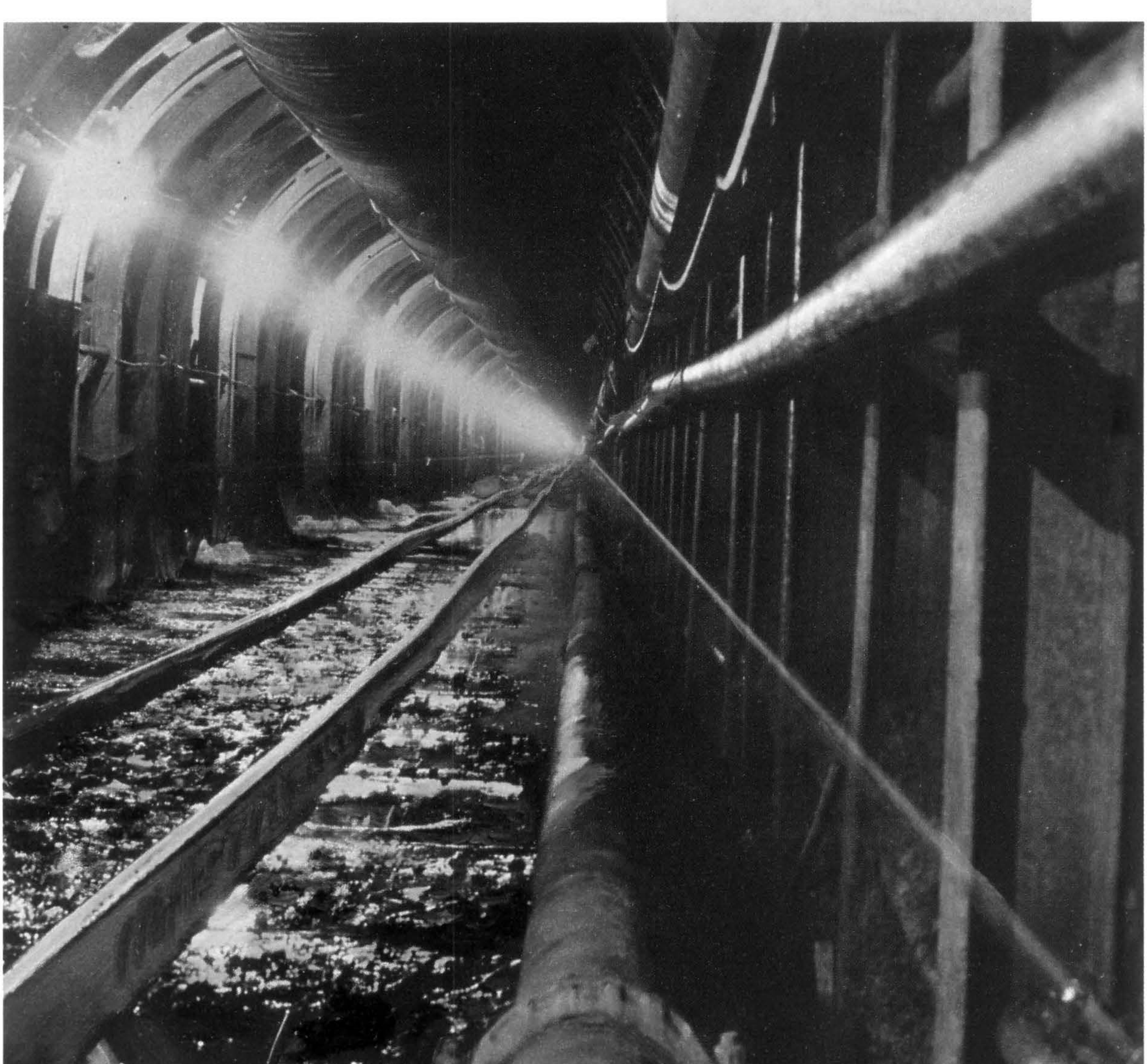
* Further testimony established that of the 448,000 acres in the San Felipe service area, only 10,175 acres in 33 holdings were excess under the 160-acre limitation, and most were in the path of urbanization and would soon be subdivided. The final version of the bill, as enacted, did in fact exempt water distributed through subterranean aquifers from the 160-acre provision.



“Laser beams kept the tunnels in alignment. The harmless needles of directional light, focused through the bores to precise spots on the deepening tunnel faces, were clearly visible in the subterranean murk.”

them rest within the State of Arizona, then obviously he is living in a creative environment that bears little relationship to the world as it actually is."

Before the hearing concluded, there were read into the record pro-San Felipe resolutions from, among others, the boards of supervisors of all four service area counties, the Republican and Democratic Parties, the Greater San Jose Chamber of Commerce, and the AFL-CIO Central Labor Council.

The bombast of the hearing became moot as the San Felipe authorization bill won approval by the subcommittee, the full committee, and ultimately both houses of Congress. President Lyndon B. Johnson signed the Senate version, S. 1111 by Kuchel, into law on August 27, 1967.

NEW CHALLENGES: THE ENERGY CRUNCH, INFLATION, THE ENVIRONMENTAL TIDE

With the high hurdle of congressional authorization cleared, annual appropriations for the planning and construction of the San Felipe Project might have been expected routinely in normal times. But in 1967 United States troops had been increasingly bogged down in Vietnam for six years. The war was straining the federal budget, and the flow of funds for public works had been cut to a dribble. The first pre-construction appropriation for San Felipe, in the 1969-70 budget, was a token $100,000. The austerity of the Johnson Administration was continuing into the presidency of Richard Nixon.

Three other developments of the 1970s—the rise of environmentalism, the worldwide energy crunch, and spiraling inflation—also affected the San Felipe Project profoundly.

A crisis arose in July 1971, when the State Water Resources Control Board issued its vital "Delta decision." To protect the ecological balance of the Sacramento-San Joaquin Delta and repel salt water intrusion there, the board doubled the quantity of up stream waters reserved for release through Delta channels into Suisun Bay. The decision diminished, by a corresponding amount, the Delta water available for export for projects elsewhere, including San Felipe.

The main threat that the Delta decision posed for the San Felipe Project was political. The Nixon Administration, beset by fiscal woes, seized upon the decision as an excuse for dropping a $1.1 million pre-construction appropriation for San Felipe out of the 1972-73 federal budget. The battle to restore the item gave rise to the project's first skirmish with the champions of a new and radical environmental philosophy.

Back in 1967, at the San Felipe authorization hearings, Gubser and Edwards had been able to say that the project had no enemies. Now, however, it had acquired a few. Since ancient Rome, aqueduct builders providing water for great civilizations had been among the most honored of engineers. Now the worm had turned.

From the end of World War II through the 1960s, a "bigger is better" boosterism had prevailed in Santa Clara County. Each new factory, store, and family had been welcomed as a contributor to wealth, culture, and a better life. But as the county's population passed one million in the 1970 census, with congestion, pollution, crime, and the strain of urban life on the rise, some said "Enough!" The new bywords were "slow-growth" and "no-growth." One faction of militant environmentalists decided that a good way to keep people out would be to cut off their water by stopping San Felipe in its tracks.

On March 13, 1972, San Felipe boosters and the environmental group squared off against each other at a San Jose City Council meeting, as the council debated a resolution asking Congress to restore the project's $1.1 million budget item.

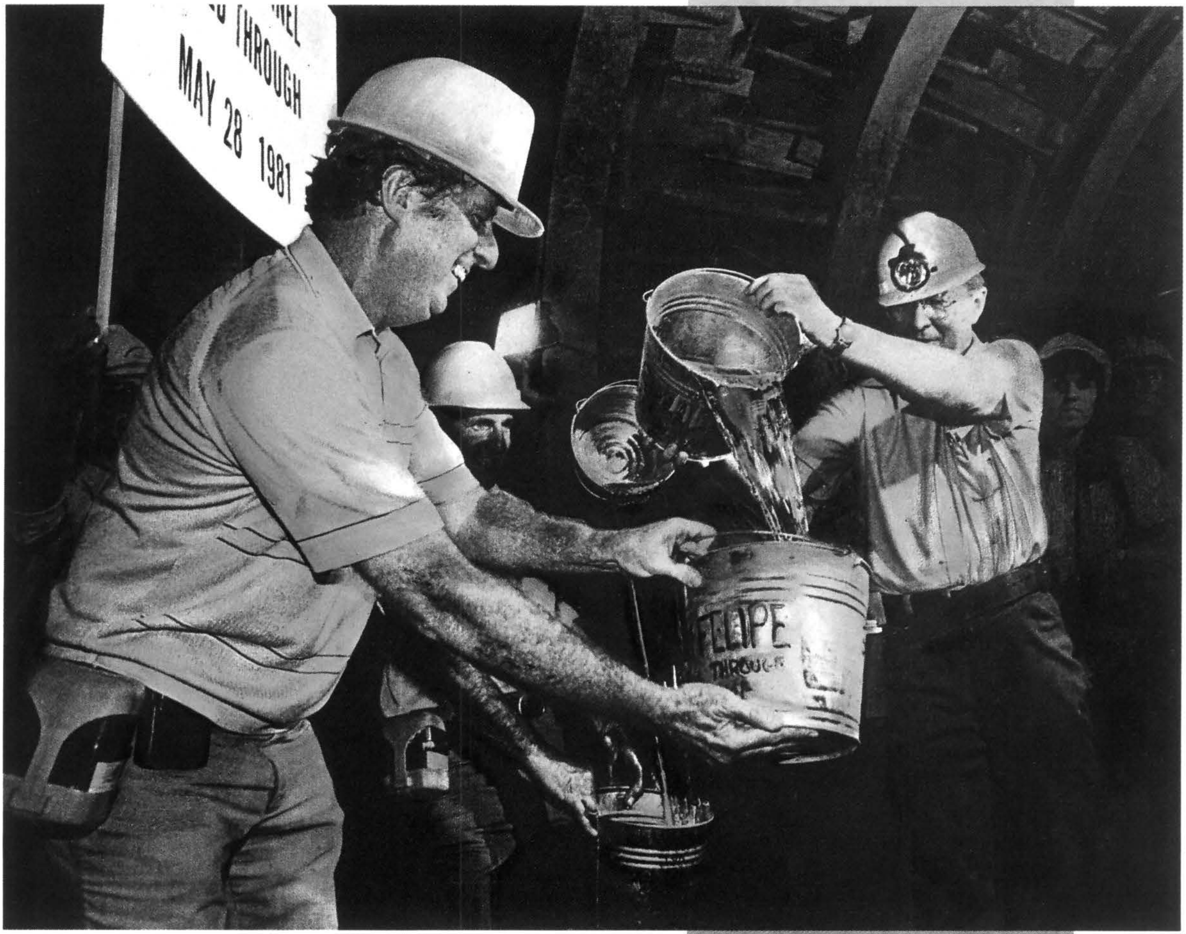
"When Calero goes dry, I go dry and my bell peppers go dry," said farmer Ray Benech, supporting the resolution.

On the other side of the issue was the Sierra Club, asking that action be withheld until more was known about San Felipe's ecological impact. Councilman Walter Hays, an environmentalist, suggested that the county turn to sewage reclamation instead. Hays' stand-offish attitude was a harbinger of things to come.

The real danger, if the appropriation were lost, was that San Felipe would lose its place in the "pecking order" of projects competing year after year for the same federal dollars. County Supervisor Charles Quinn, a backer of San Felipe, warned that if it lost its priority, it could be dead for 25 years.

Rainfall in 1972 was only seven inches, about half-normal, and this compounded the alarm. Even with the annual importation of more than 88,000 acre-feet of South Bay Aqueduct water, which had first arrived in 1965, Santa Clara Valley's underground was barely holding its own.

“It was tough, grueling work, which would go on 24 hours a day, five days a week, for the next two years and ten days. Over and over the blasting process was repeated: A pattern of 60 holes would be drilled four feet deep into the tunnel face and filled with dynamite. The charge would be detonated and the muckers would move in to clear the rubble. The earth and rock were hauled from the tunnel on stubby, diesel–powered rail cars whose tracks lengthened behind the blast crews as the bores deepened.”



“The ‘holing through’ came at 5:36 a.m. on May 28, a Thursday, 1,200 feet deep in the mountain, 13,930 feet from the east portal, 13,625 feet from the west. It was ten months ahead of schedule. The two bores were within a fraction of an inch of perfect alignment. Later in the day Hart and Dennis C. McCrarry, project manage for Atkinson, poured buckets of San Luis water into other buckets held by SCVWD board Chairman Lenihan and Ralph Gabriel of the San Benito County Water Conservation and Flood Control District. It was ‘the first water through the Pacheco Tunnel.’ ”

Already the most optimistic San Felipe timetable had lost seven to nine years. In 1960, the Bureau of Reclamation had envisioned the project's completion by 1968-70; now, the best hope was that it might start delivering water in 1977.

The fears of Quinn and Benech did not faze the no-growth people, however. Their opposition to San Felipe was hardening, and they were finding allies in high places. Politicians and officeholders from courthouse to White House were becoming increasingly sensitive to environmental concerns.

When State Sen. Clark Bradley of San Jose introduced a resolution at Sacramento calling for reinstatement of San Felipe's budget item, San Jose Assemblyman John Vasconcellos introduced an opposite one, calling on Congress to deny the money pending an environmental study. In the end, Bradley's resolution prevailed and Vasconcellos' was softened, but Santa Clara County's facade of unity was shattered anew. After a decade of solidarity on water issues, the county was again facing the state and federal powers, upon who so much depended, with a fractured front.

The political uproar surrounding San Felipe escalated as the budget item hung in the balance. In April the environmentalist Committee for Green Foothills went before the Board of Supervisors, asking it to rescind a pro-San Felipe resolution it had adopted in February. The board refused.

The donnybrook even took on ethnic overtones. In May, a Mexican-American group threatened a lawsuit to block the San Felipe appropriation unless $100,000 of it was spent studying the project's impact on the poor. Jack Ybarra, spokesman for the group, asserted that San Felipe would increase land values, thereby driving agriculture out and eliminating farm jobs.

For a while it seemed that the federal budget item was doomed. Michael B. Smith, a staff assistant to President Nixon, told the California Water Resources Association flatly that San Felipe would not be put back on its funding track until the questions raised by the Delta decision were formally resolved.

In Washington, however, Gubser was unperturbed. He told the *Mercury News*, "I've had direct contact with White House officials very high on the totem pole—much higher than Smith—and while I have received no promise, I am saying I'm optimistic."

Gubser's optimism proved well founded. In the end Congress restored $376,000—not as much as the original cutback but enough to keep San Felipe moving ahead.

The difficulties posed by the Delta decision were ultimately overcome when the districts contracting for San Felipe water agreed to a reduction of deliveries when necessary to preserve the Delta's water quality.

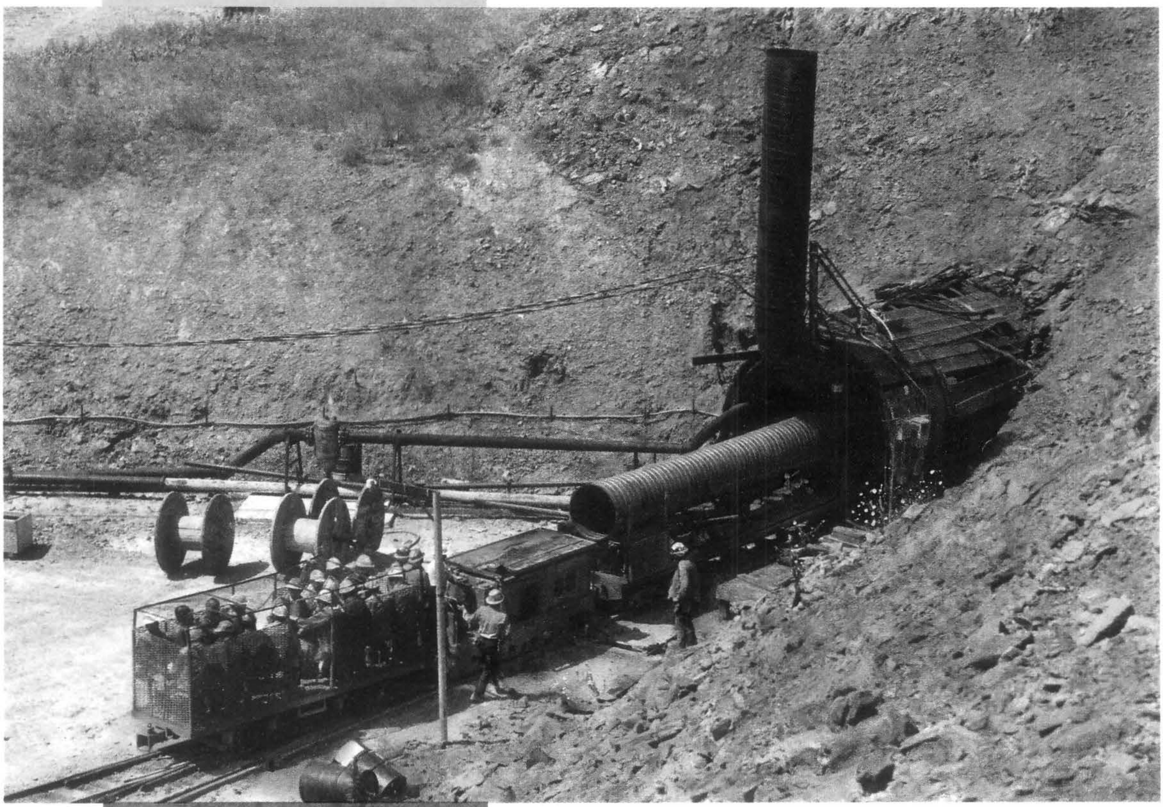
In 1972, responding to the environmentalists' concerns, Santa Clara Valley Water District directors paid Consoer-Bechtel, a consulting engineer firm, $60,000 for a study comparing San Felipe with sewage reclamation as to cost-effectiveness. The report, delivered in September, analyzed nine alternative reclamation plans, finding that their water would cost 5 to 25 percent more than the San Felipe supply, taking into consideration the latter's federal subsidy. Disregarding the subsidy, reclaimed sewage would cost 5 percent less than San Felipe water, but the maximum quantity available would be little more than half what San Felipe could supply. Moreover, reclaimed sewage would not be usable for municipal or industrial purposes, only for limited surface irrigation.

The Consoer-Bechtel report, says SCVWD Director Lenihan, "confirmed the fact that San Felipe was the feasible way to get water. The state of the art at that time was not advanced sufficiently to make reclamation a viable alternative to the water supply available through the San Felipe Project."

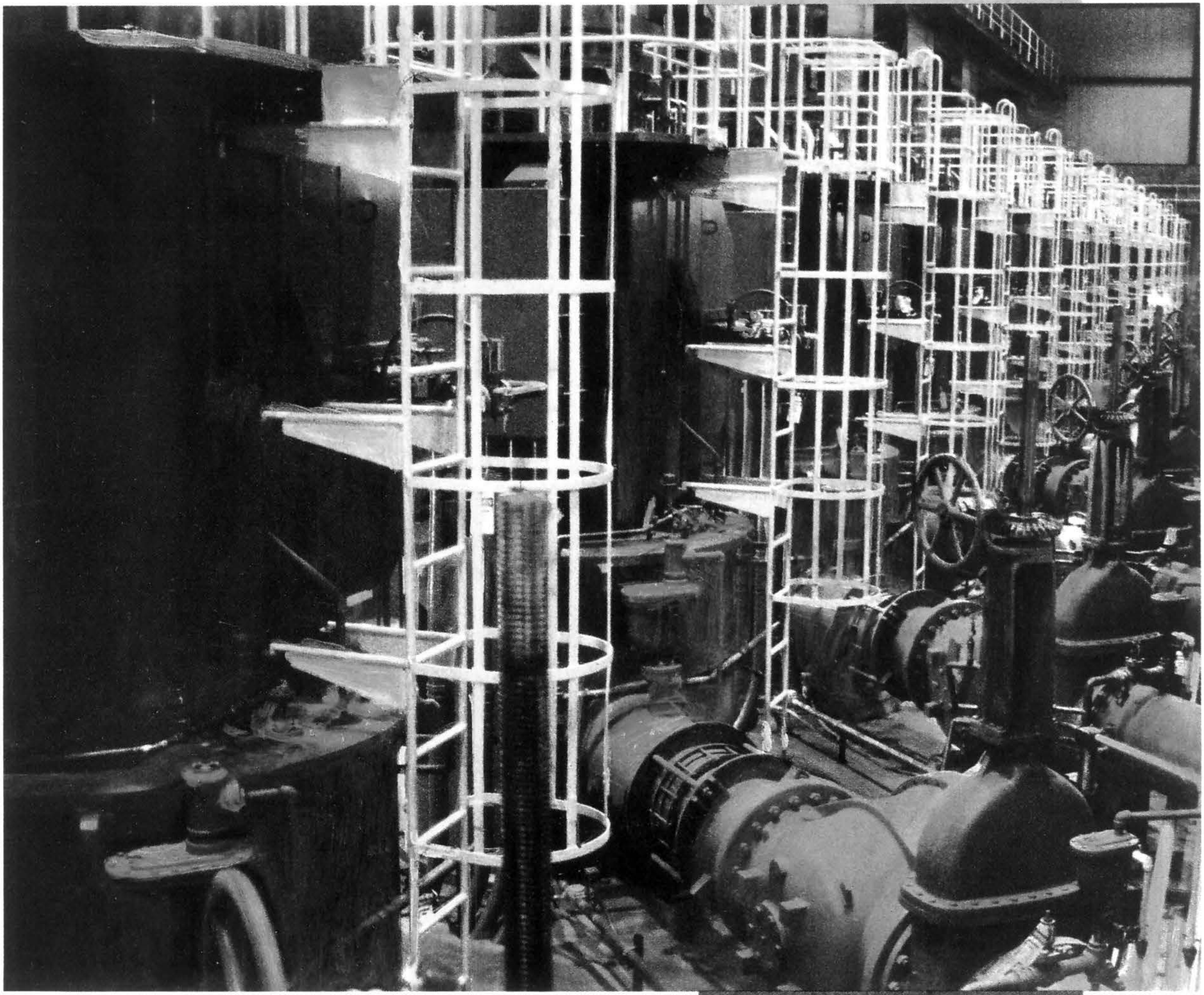
Earlier in the year the Bureau of Reclamation had been talking about 1977 as a target-date for the first San Felipe deliveries, but Consoer-Bechtel pegged 1980 as the earliest possible completion date for either San Felipe or a sewage reclamation project.

When Nixon unveiled his 1973-74 budget the following January, it was clear that another rough year was ahead. For the second year in a row San Felipe was cut off without a dime. Gubser, furious, dug in for another battle. The following month the administration landed a roundhouse punch. The federal environmental impact study of the San Felipe Project had been expected since mid-1972, but its release had been repeatedly held up. Now, on February 13, 1973, the Bureau announced that the report would be delayed an additional 18 months to two years.

The reasons given for the postponement included toughened standards for environmental impact studies, as dictated by the courts, and reduced estimates of water demand in the service area. The Santa Clara Valley Water District had been studying population and land use projections by the fifteen Valley cities, the County, and the State Department of Finance. David K. Gill, the district's water supply manager, and his staff, concluded that conservative growth projections, teamed with reduced per-capita water use, could work to reduce the planned amount to be delivered through San Felipe. The district then asked to have its annual entitlement cut from 210,000 to 152,500 acre-feet.



"During the whole period, tours were regularly conducted. Hundreds of men and women from Santa Clara and San Benito counties and elsewhere had climbed aboard caged passenger cars to travel deep into the mountain tunnel. Equipped with boots, rain slickers, hard hats and gas masks, they all survived—some covered with mud and others shaking off claustrophobia."



“The plant’s most visible feature, the building that houses its twelve 2,000-horsepower pumps, is 268 feet long, almost 75 feet wide, and 30 feet high.”

The prospective delay of the EIS pushed the whole timetable for San Felipe two years farther into the future. Albert Henley, counsel for the SCVWD, sadly acknowledged that the hoped-for 1980 water delivery date was now "down the tubes."

Gubser was worried, warning again that if San Felipe lost its priority, it might never be funded. He doubled his pressure for another appropriation, and by May 9 he had a commitment for $200,000 in the 1973-74 budget.

Then, on the heels of the budgetary victory, a new peril appeared. This was the time of the first great energy crisis; by the end of the year the Arab oil embargo would create long lines at the gas pumps. On May 31 Assistant Secretary of the Interior Jack O. Horton announced that Reclamation would thereafter concentrate on projects serving such facilities as coal gassification and shale-oil plants; others, including San Felipe, might be dropped. Nothing came of Horton's trial balloon, but later, in other ways, the energy crunch would have major impact on San Felipe.

By now the SCVWD had begun provisional negotiations with the Bureau of Reclamation for water delivery from the yet-to-be-built project. The talks, where Esau and Gill were the district's representatives, were grueling, and the agreement which grew out of them was anything but a sweetheart contract. Esau, now assistant general manager of the district, remembers one Christmas eve session at which intransigence set in, and then anger. He finally ended the meeting by hurling a Christmas tree across the room and stomping out "just to make a point!"

Nevertheless, the bargaining raised the suspicions of the environmentalists, who stepped up their attack. In Sacramento, Vasconcellos obtained a legislative counsel's opinion that the district must complete its own environmental impact report on San Felipe—separate from the Bureau's—before signing a contract for project water. This merely confirmed what Henley, as district counsel, had already advised. However, the Environmental Defense Fund served notice that it demanded such a report and would be watching. The warning did not sit well with Henley.

"I have no objection to the eternal vigilance business," he snapped, "but I do resent the possible implication that something is going to be put across by us here despoilers before anyone can get an injunction issued."

Mired in Watergate, the Nixon Administration gave up efforts to sidetrack San Felipe and returned it voluntarily to the budget for 1974-75. In that year Congress appropriated the first construction money for the project: $585,000, which went mainly for archaeological studies* and gearing up. Gubser, who was retiring from Congress at the end of 1974, was jubilant, hailing the project's passage into the construction phase as the climax of his 22-year career. Likewise ecstatic was his colleague to the south. Representative Burt Talcott.

"This is the best news for San Benito since it became a separate county," Talcott said.

Historically, the first construction appropriation for any water project had been a major milestone, virtually assuring its ultimate completion as a matter of course. San Felipe would not be so lucky.

By February 1974, the Bureau's cost estimate had risen on the wings of inflation to $144 million. In May the figure was cut back to $138 million, after Santa Cruz and Monterey Counties decided the Pajaro Valley had no imminent need for outside water and opted to stay out of the project for the time being. They reserved capacity in the aqueduct, however, should they want to hook onto it later.

Part of the savings resulted from the first of several major revisions in the original engineering of the project. It was decided to substitute pipelines for concrete-lined trenches in the Santa Clara and San Benito reaches of the aqueduct. This would save the expense of bridges at roadways, trim right-of-way costs, minimize environmental impacts, cut eventual maintenance expense, and save several thousand acre-feet of water which would be lost yearly through evaporation and seepage from open ditches.

The twin environmental impact reports on San Felipe—the water district's and the Bureau's—were completed in draft form during the winter of 1974-75.

The district's report, appearing first in early November, addressed the prime contention of the environmentalists: that San Felipe would stimulate unbridled population growth. Indeed, the EIR said, San Felipe would allow increased population and industrial growth in the Santa Clara Valley by forestalling a severe water shortage as early as 1982. With San Felipe, the county's population in the year 2000 could be about 2.2 million; without it, the population would level off at about 1.9 million. Available water supplies from local reservoirs, the State Water Project, and Hetch Hetchy could serve up to 1.4 million only.

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* Repeatedly during construction, San Felipe Project facilities were redesigned to avoid Indian burial sites. Notably, the pipeline was rerouted in the vicinity of Lone Tree Road near Hollister, and the planned Coyote Afterbay below Anderson Dam was eliminated totally for this reason.

> "The 20.8-mile Santa Clara Conduit, running northwesterly from the branching point to the Coyote Pump Station, cost $43.4 million, or about $2.1 million per mile."

"Our job," said SCVWD Director James Lenihan, "is to make damn sure that if we do have 1.9 million people here, we've got enough water for them."

The complementary environmental impact statement by the Bureau of Reclamation appeared on February 19, 1975, fulfilling with six days to spare the two-year delay that the Bureau had predicted on February 13, 1973. It was a wide-ranging document dealing with water quality in the Delta, seismic considerations, the ecology of the Pajaro River, and possible alternatives to the Pacheco Pass aqueduct. Total San Felipe deliveries for the entire project service area were now pegged at 216,200 acre-feet, down from the 293,000 figure of the feasibility report. Santa Clara County's voluntary cutback from 210,000 to 152,500 acre-feet accounted for most of the reduction.

THE GREAT TRANSITION: FROM PLANNING TO BUILDING

On May 22, 1975, the Bureau of Reclamation opened its San Felipe Division construction office in Gilroy, with William C. Hart as engineer in charge. He would oversee the building of the project from start to finish.

Eleven months later, on April 9, 1976, bids were called for the project's biggest single contract, the 8.5 mile "reach 2" of the Pacheco Tunnel, extending "Gubser's pipe" to an outlet portal on the west side of the mountains. The bid opening, announced for May 20, was only 13 days away when the environmentalists took their best shot. The Environmental Defense Fund and the Sierra Club sued in U.S. District Court, alleging that the federal environmental impact statement was inadequate and asking an injunction to bring the San Felipe Project to a full halt. Named as defendants and accused of acting "arbitrarily and capriciously" were Commissioner Gilbert Stamm and Regional Director Billy Martin of the Bureau of Reclamation.

Judge Stanley R. Weigel granted a temporary injunction and took the case under submission, for how long no one knew. The SCVWD calculated that every passsing month was increasing San Felipe's cost by roughly a million dollars.

During the hiatus, the San Felipe opposition had a heyday. In January 1975, the leadership in Sacramento had passed from Governor Ronald Reagan, who supported the project, to Governor Edmund G. "Jerry" Brown Jr., who had been elected with heavy environmental support. His "small is better" outlook contrasted sharply with the forge-ahead attitude of his father, Pat Brown. Because San Felipe was a federal, not a state undertaking, Jerry Brown could not stop it directly (nor did he try), but his administration posed a threat nevertheless.

"We always operated on the premise that the governor of any state, although he cannot authorize a project, can certainly stop one," Esau says.

Brown filled certain key posts with San Felipe's anti-growth foes, who used their positions to potshot at it. Enid Pearson, a former Palo Alto city councilwoman named by Brown to the California Water Commission, denounced San Felipe as "the biggest ripoff in the world" and called a four-hour hearing in Sacramento to give its enemies a sounding board. Brown's Director of Water Resources, Ron Robie, also opposed the project when he took command, but later gave it his backing.

SAN FELIPE SURVIVES THE JIMMY CARTER "HIT LIST"

The political threat posed by Jerry Brown's people was more than matched in Washington with the inauguration of President Jimmy Carter in January 1977. Carter also had strong environmentalist support, and moreover, as governor of Georgia he had clashed with the Army Corps of Engineers over its plan to dam the Flint River. He had accused the Corps of falsifying the data it used to justify the project, which he ultimately vetoed, asking Congress to reassess what he called "similar porkbarrel projects" around the nation.

On February 2, 1977, only 13 days after Carter's inauguration as President, his famous "hit list" of water projects was born, in a memo by White House staffer Steven D. Jellinek, director of the Council on Environmental Quality. Address, Carter's director of the Office of Management and Budget, the memo identified "projects which we believe are prime candidates for termination of funding on both environmental and economic grounds by the Carter Administration." After summarizing policy changes including "reduced federal subsidies for irrigated agriculture," Jellinek continued:

> *Unfortunately, Congress has continued to authorize and seek presidential support for a number of these projects that conflict with these policies. Such projects have been designed generally using outdated planning criteria which benefit narrow local interests. When current planning criteria are used, the net economic benefit to the nation as a whole from most of these projects is marginal at best.*

Attached to Jellinek's memorandum was a list of 30 projects alleged to entail "major adverse environmental impacts." San Felipe was the last project on the list; it would supposedly "destroy substantial wildlife habitat," "eliminate significant commercial and/or sports fisheries," "degrade existing water quality," and "destroy significant historic or archaeological sites." These assertions were pointedly at odds with the findings of the San Felipe feasibility report.

Secretary of the Interior Cecil Andrus, after looking over the "hit list," wrote his own memorandum to Carter on February 14, agreeing that many of the projects on it were "of dubious merit." However, he added a warning.

"Mr. President," Andrus wrote, "let me stress again what I mentioned in the Cabinet meeting this morning. If we attempt to alter any of these projects for whatever reason, our action will act as a catalyst to create political coalitions in the Congress... I am not arguing against eliminating some of these projects—some definitely merit action—but I want you to know that there will be political retaliation from the Congress when we do."

Regarding San Luis specifically, Andrus observed that it would be "difficult politically to attack...because it would serve notice (that) Central Valley projects are not sacred and they will be critically reviewed by the administration."

With this sort of deliberation going on in Washington, San Felipe's supporters could only hold their breaths, as they marked time with Weigel's injunction in force. The area's four congressmen—Democrats Norman Mineta, Don Edwards, and Leon Panetta and Republican Paul N. McCloskey Jr.—joined in urging that San Felipe's funding be retained, fulfilling Andrus' warning to Carter about political coalitions.

Weigel took eleven months to hand down his decision in the Environmental Defense Fund case, but when it came, it was a resounding victory for San Felipe. The judge found all contentions of the plaintiffs to be "without merit" and lifted his injunction on April 26, 1977.

THE SCVWD SIGNS ITS CONTRACT— "THE ICING ON THE CAKE."

John T. O'Halloran, formerly city manager of Mountain View, had succeeded Don Currlin as general manager of the SCVWD in 1973. He had spent his first four years working quietly, bringing political forces together to broaden San Felipe's base of support. He remembers the first week of June 1977 as "perhaps the best week San Felipe had ever had."

The district had just passed a $52-million bond issue for the needed in-county water treatment and distribution facilities. On June 2 the Bureau renewed the bid call for Pacheco Tunnel's 8.5-mile tunnel section, the heart of the whole project, with an engineers' cost estimate of $70 million. Then on June 7 came what O'Halloran considered "the icing on the cake": The district entered into a 40-year contract with the Bureau of Reclamation for San Felipe water of the highest quality "reasonably attainable."

The historic agreement was signed at an outdoor ceremony against a backdrop of the percolation ponds at the district's Almaden Expressway headquarters. It was a euphoric occasion, tempered only by nervousness lest a process server—bearing notice of some last-ditch maneuver by the environmentalists—show up at the final moment to block the proceedings. None appeared. Regional Director Martin signed for the Bureau; board Chairman Courtland Rush for the SCVWD.

The contract provided for annual water deliveries increasing from 16,000 acre-feet in the project's first year to 152,500 in its fortieth. The amounts could be reduced in drouth years. Prices were set at $16.50 per acre-foot for agricultural water and $61 for the municipal and industrial supply, with provisions for periodic adjustment. These rates, reflecting thirteen years of inflation, more than doubled the respective estimates of $7 and $30 in the 1964 feasibility report (but they were still far below the state's $109 price for South Bay Aqueduct water).

A SCARE AT THE BID OPENING: DONALD DUCK TAKES OVER

The euphoria of the contract-signing was short-lived. On July 14 the Bureau opened the tunnel bids, and the lowest was $105 million—half again above the engineers' estimate. All bids were rejected. Suddenly the whole project was again in jeopardy—the worst peril ever. The $105 million bid, far outside the inflation parameters of the Bureau's construction cost index, raised a serious prospect that San Felipe's authorization would lapse, particularly in the climate of Jimmy Carter's Washington. The project would be back to square one.

"We were devastated," remembers Esau, who set out on a mission to the Bureau's engineering and research center in Denver, to determine whether San Felipe was salvageable. It was there he encountered the Bureau's design and construction engineer he credits largely with saving the project—a man with the unlikely name of Donald Duck.

After careful study of the tunnel blueprints, Donald Duck decided they were "Mickey Mouse." He ordered a near-total redesign. By moving the tunnel some 300 feet higher up the mountain, he could shorten it to 5.2 miles, saving more than three miles of digging.

But that was not the only reward that reengineering offered. The original plan might have made sense when energy cost two-and-a-half mills per kilowatt-hour, but now it was climbing toward 30 mills and the plan had to be revised. It called for the construction, deep inside the mountain, of an enormous concrete chamber deliberately designed to waste energy—a subterranean room 12 feet wide, three stories high, and the length of a football field.

"It would have been built like Hitler's bunker," Esau says.

The sole purpose of this "energy dissipator," as it was called, would have been to release the low-level tunnel's water pressure ("head") of 98 pounds per square inch, created by the San Luis lake rising above the inlet. Inside the dissipator, concrete baffles would have slowed the torrent to a peaceful stream, flowing by gravity through a less-than-full pipe to the Santa Clara side of the mountain. Without the dissipator, the tunnel would have had to be much sturdier and costlier in design, to contain the pressure and resist its erosion.

After the water's emergence from the tunnel outlet, its wasted head would have had to be restored by pumps, lifting it back to about the original level of the San Felipe lake, to continue its final gravity flow to its Santa Clara and San Benito County destinations. Multiple pumping plants would have been needed on the west side of the mountains.

In the redesign ordered by Duck, these pumping stations west of the tunnel would be replaced by a single pumping plant at the east end, sitting on a shelf carved out of a mountain near San Luis Reservoir's Dinosaur Cove. There, from the extremity of "Gubser's pipe," the water would be raised to the intake of the shortened tunnel higher up the hill. The lift, taking full advantage of the reservoir's high water level, would be only about 95 feet when the lake was full. From the tunnel's west end, the water would flow by gravity—through pipes rather than canals in the new design—all the way to San Justo Reservoir near Hollister, Calero Reservoir near San Jose, and the new Santa Teresa water treatment plant in Almaden Valley.*

Bureau engineer Hart calculated that the overall energy saving of the new plan would be about 10 percent. But besides this and the economy of a shortened tunnel, there would be other major savings. The costly energy dissipator would be eliminated. So would two expensive valves that the old plan required to keep the low-level tunnel from draining San Luis Reservoir through the mountains into the Santa Clara Valley. Moreover, the water pressure in the high-level tunnel, created by a holding tank 31 feet above the inlet, would be relatively minor (14 pounds per square inch); thus the bore could be built to more modest specifications and its diameter could be reduced (by one foot) to 9.5 feet.

On April 15, 1978, in a signing ceremony much like that which the SCVWD had held ten months earlier, the San Benito County Water Conservation and Flood Control District entered into its contract with the Bureau, pinning down an annual 43,800 acre-feet of San Felipe water.

A call for new bids on Pacheco Tunnel—this time the high-level tunnel only 5.2 miles long—went out on September 1, 1978. When the bids were opened more than two months later, on November 8, the wisdom of the revised engineering was confirmed: The low bidder was Guy F. Atkinson Company of South San Francisco, at $49,753,520.

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*In practice, the Coyote Pump Station, a mile west of the downstream face of Anderson Dam near Morgan Hill, helps push San Felipe water through the SCVWD's Cross-Valley Pipeline on the final leg of its journey to Calero reservoir and Santa Teresa. This pump lift, however, merely accelerates the flow. A considerable volume of water can reach Calero and Santa Teresa by gravity without pumping assistance.

Although the Atkinson bid was more than $55 million under the previous year's low bid on the 8.5-mile tunnel, it exceeded the engineers' revised estimate by $4 million. This set the stage for one last try by the environmentalists to kill the project.

Keith Higginson, President Carter's reclamation commissioner, had turned out to be an administrator who was fair and who dealt even-handedly with San Felipe on its merits, despite Carter's general distrust of water projects. When, upon review, San Felipe had passed muster anew environmentally, economically, and from the safety standpoint, Higginson had became its supporter. Now, however, he faced a problem with it under the law. The project's 1967 authorization act had set a monetary limit of $92,380,000 for new construction, with provision for inflation in proportion to engineering cost indexes. As 1979 began, the formula had increased the spending limit to about $220 million, but overruns above that level would require congressional approval.

Even with the savings of the tunnel redesign, new cost estimates for the overall project were stretching the $220 million limit. Higginson resolved the issue by sending a message to Congress which said in effect, "San Felipe is too close to call. We're going to build it unless you object." There was no reply, and on January 19, 1979, the Bureau of Reclamation announced it would accept the Atkinson bid on the tunnel.

Four days later the project's enemies pounced. Friends of the Earth, an environmental organization based in San Francisco, filed suit in federal court for a temporary restraining order and a permanent injunction halting all work on San Felipe until Congress had re-authorized it. Representing the plaintiff was attorney Walter Hays, the former San Jose councilman who had opposed the project since 1972. This lawsuit was quickly disposed of. Judge Samuel Conti dismissed it on March 2 for "plaintiff's failure to prosecute."

APRIL 18, 1979: DIGGING STARTS ON THE PACHECO TUNNEL

The final environmental litigation having been put to rest, the tunnel contract was awarded to Atkinson. Excavation began almost without ceremony at the eastern (inlet) portal of the tunnel on April 18,

1979. Later that day, water district public relations officer James R. Melton arrived at the portal site with *San Jose Mercury News* reporter Frank Sweeney. With no one else around to make note of the day, each of them grabbed a miners pick and took swings at the mountain's face. "It wasn't fancy, but it was a memorable ceremony to us," Sweeney remarked later. One month later, on May 18, Atkinson started blasting at the outlet portal 5.2 miles away on the west side of the mountain.

It was tough, grueling work, which would go on 24 hours a day, five days a week, for the next two years and ten days. Over and over the blasting process was repeated: A pattern of 60 holes would be drilled four feet deep into the tunnel face and filled with dynamite. The charge would be detonated and the muckers would move in to clear the rubble. The earth and rock were hauled from the tunnel on stubby, diesel-powered rail cars whose tracks lengthened behind the blast crews as the bores deepened. As the debris was removed, steel I-beams bent into huge horseshoes were installed at intervals, with shoring between, to form the arched ceiling of the 12-foot tunnel needed to accommodate the aqueduct's 9.5-foot "sleeve."

In all, the rail cars removed 150,000 cubic yards of rock and earth, as 160 tunnelers blasted their way through veins of metashale, sandy metagraywacke, phyllonite, and greenstone—formations 180 million years old.

Foes of San Felipe had often sent up the alarm that it would be vulnerable to earthquakes. On January 24, 1980, a quake registering 5.5 on the Richter scale, with its epicenter near Livermore, jolted the area. The crews inside the mountain felt nothing.

On July 17 came trouble, when the west bore struck a subterranean pocket of highly flammable methane gas. Blasting was halted, and Cal-OSHA inspectors moved in. Tunneling from the west did not resume until September 2, after gas-sensing equipment had been installed, the ventilation in the bore improved, and a workman assigned to make certain that the colorless, odorless gas never reached an explosive concentration.

Laser beams kept the tunnels in alignment. The harmless needles of directional light, focused through the bores to precise spots on the deepening tunnel faces, were clearly visible in the subterranean murk.

As mid-May 1981 approached, the crews in the east and west tunnels, working in humid 98-degree heat, began to sense each other's vibrations. On May 18, they were 239 feet apart and were reducing the gap by 60 feet each day. Loose shale and crumbling earth were encountered in the final 24 feet of the dig, slowing the excavation while extra steel shorings were brought in for the tunnel ceiling.

The "holing through" came at 5:36 a.m. on May 28, a Thursday, 1,200 feet deep in the mountain, 13,930 feet from the east portal, 13,625 feet from the west. It was ten months ahead of schedule. The two bores were within a fraction of an inch of perfect alignment.

"I didn't think it had gone through at first," said E.W. "Lefty" Newland, a Bureau of Reclamation inspector. "We knew we were close but didn't feel the air come through as expected." (Within hours, however, the tunnel temperature dropped 10 degrees.)

Newland was the first person to clamber through the hole between the tunnel's ends.

"I made the statement a year ago that if I was here I'd be the first one to walk through the muck pile," he told television reporter Rigo Chacon.

Later in the day Hart and Dennis C. McCarry, project manager for Atkinson, poured buckets of San Luis water into other buckets held by SCVWD board Chairman Lenihan and Ralph Gabriel of the San Benito County Water Conservation and Flood Control District. It was "the first water through the Pacheco Tunnel."

Jimmy Erwin of Sonora was enriched $1,200 by the breakthrough. He won a company pool, by guessing its precise minute. He immediately quit his job and headed for home.

In the two years of tunneling, there had been no deaths on the job. Only six workers had been hurt badly enough to be taken from the tunnel on stretchers.

During the whole period, tours were regularly conducted. Hundreds of men and women from Santa Clara and San Benito counties and elsewhere had climbed aboard caged passenger cars to travel deep into the mountain tunnel. Equipped with boots, rain slickers, hard hats and gas masks, they all survived—some covered with mud and others shaking off claustrophobia.

The Pacheco Tunnel, at the time its ends were joined, was still twenty months from completion. Pouring of its concrete lining took from July 8, 1981, to May 18, 1982, and finishing work took until January 26, 1983.

During the tunneling, the price of the San Felipe Project had continued to spiral. It had been $220 million early in 1979; now the news stories pegged it at $286 million.

THE NEXT-TO-LAST CHAPTER: SIX YEARS OF LIVELY ANTICLIMAX

If all that has happened with San Felipe since the Pacheco Tunnel link-up has been anticlimax, it has been important nonetheless—and costly.

The Santa Clara Tunnel, a one-mile bore through another hill eight miles to the west, was drilled between September 8, 1981, and April 29, 1982, by Shank-Artukovich of Littleton, Colorado, costing $9,233,432.

Underground Construction Company and Continental Heller, in a joint venture, built the Pacheco Pumping Plant, which lifts water between the lower and upper reaches of Pacheco Tunnel, for $14,456,000, starting March 21, 1983. The plant's most visible feature, the building that houses its twelve 2,000-horsepower pumps, is 268 feet long, almost 75 feet wide, and 30 feet high. The pump units themselves were supplied by Toshiba International Corporation of San Francisco for $5,944,542.

The Coyote Pumping plant west of Anderson Dam, where six more 2,000-horsepower pumps will give the San Felipe water a final boost for its journey to Calero and Santa Teresa, was built by Western States Construction Company of Loveland, Colorado, for $9,545,169, starting in 1985.

San Justo Dam and its 10,000-acre-foot reservoir—the San Benito County terminus of the San Felipe aqueduct between Hollister and San Juan Bautista—were built by Grade-Way Construction Company of Fremont for $13,024,000.

San Felipe's three principal conduits, carrying the water from the Pacheco Tunnel to its Santa Clara and San Benito destinations, total more than 47 miles in length and were built in sections by several contractors for about $94.3 million altogether.

Numerous other construction jobs large and small have contributed to the overall expense of the San Felipe Project, which now appears to be about $310 million.

On a per-mile basis, the most costly of the three main pipelines is the Pacheco Conduit. It runs through eight miles of hilly terrain from the Pacheco Tunnel's west portal to a point near the Casa de Fruta resort on Pacheco Pass, where it branches into separate lines for Santa Clara and San Benito Counties. Its $25,558,000 price works out to almost $3.1 million per mile.

The 20.8-mile Santa Clara Conduit, running northwesterly from the branching point to the Coyote Pump Station, cost $43.4 million, or about $2.1 million per mile. The Hollister Conduit, which runs 18 miles south from the split to the San Justo Reservoir, cost $26.4 million. It's price per mile was just over $1 million (excluding its $8.5-million outlet works).

Several of these jobs, unlike Atkinson's on the Pacheco Tunnel, were bid below the Bureau engineers' estimates, by amounts ranging up to $9 million in the case of the Santa Clara Conduit.

Why?

"It was a time when contractors were hungry," says engineer Hart.

Another contract-signing ceremony, with the Bureau and the water districts of Santa Clara and San Benito Counties as parties, took place in San Jose on September 8, 1986. The agreement made the SCVWD not only a client of the San Felipe Project, but also its operator. Responsibility for operation and maintenance of the project's joint-use facilities—including the Pacheco Power Plant, the Pacheco Tunnel, and the aqueduct east of its Santa Clara - San Benito branching point—was transferred from the Bureau to the SCVWD. San Benito agreed to pay its share of the joint-use cost and maintain its own branch pipeline and dam.

The SCVWD will operate the entire project from telemetry controls at the Rinconada Water Treatment Plant in Los Gatos, using a fiber-optics transmission line running all the way back to Pacheco.

SAN FELIPE: A PROJECT BUILT FOR YEAR 2020 A.D.

The San Felipe Project delivered its first water to Calero Reservoir at 10:10 a.m., June 10, 1987. In its final form, the San Felipe Project is much changed from what was envisioned two, three, or four decades ago. Inflation has increased its price almost fourfold, and its annual deliveries will be one-fourth reduced from the 293,000 acre-feet contemplated in 1964. The final cost figure in the range of $310 million will supply only 216,000 acre-feet.

However, the project will be far more efficient than thought possible when it was conceived. Not only does the high-level tunnel design vastly reduce San Felipe's energy consumption; the decision to build an aqueduct of pipes rather than canals will save an enormous wastage of water from losses along the route.

The environmentalists may claim much of the credit for the improvement. They did not scuttle San Felipe, as they tried to do, but they and the engineers made it a sounder thing than it would have been otherwise.

The lasers that steered San Felipe's long tunnel through the mountain and the fiber-optics telemetry that will operate the project are technologies that did not exist when the San Felipe dream was first dreamed.

The project will ultimately supply more than one-fourth of all water used in Santa Clara Valley. Added to the local supply and the other imports via the South Bay Aqueduct and Hetch Hetchy, the San Felipe deliveries should forestall any further shortage before the year 2020.

The water flowing through the San Felipe's pipelines may originate, actually, anywhere in the Central Valley watershed, from the Trinity Alps to the Tehachapis, from the coastal ranges to the Sierra. But by the legal fiction of water rights law, it will nominally derive from the reservoir about 300 miles to the north behind Trinity Dam—the local filings on the American River having been swapped for Trinity water many years ago.

This legal origin is fitting, for that reservoir is named Clair Engle Lake—after a statesman who attended San Felipe's birth and supported the project as long as he had life.

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